



# TEST REPORT

FCC/IC DTS ax Test for LGSBWAX12  
Certification

**APPLICANT**  
LG Electronics Inc.

**REPORT NO.**  
HCT-RF-2009-FI004

**DATE OF ISSUE**  
10 September 2020

**Tested by**  
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Accredited by KOLAS, Republic of KOREA

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<h1 style="margin: 0;">TEST REPORT</h1> <p style="margin: 0;">FCC/IC DTS Test for LGSBWAX12</p>	<p><b>REPORT NO.</b> HCT-RF-2009-FI004</p> <p><b>DATE OF ISSUE</b> September 10, 2020</p> <p><b>Additional Model</b> -</p>
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**Applicant**      **LG Electronics Inc.**  
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<b>Eut Type</b>	RF Module
<b>Model Name</b>	LGSBWAX12
<b>FCC ID</b>	BEJLGSBWAX12
<b>IC</b>	2703H-LGSBWAX12
<b>Modulation type</b>	OFDMA
<b>FCC Classification</b>	Digital Transmission System(DTS)
<b>FCC Rule Part(s)</b>	Part 15.247
<b>IC Rule Part(s)</b>	RSS-247 Issue 2 (February 2017) RSS-Gen Issue 5_Amendment 1 (March 2019)

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test results were applied only to the test methods required by the standard.

## REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	September 10, 2020	Initial Release

### Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC / IC Rules under normal use and maintenance.

This laboratory is not accredited for the test results marked \*.

The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

\* The report shall not be reproduced except in full(only partly) without approval of the laboratory.

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### 1. EUT DESCRIPTION

Model	LGSBWAX12		
Additional Model	-		
EUT Type	RF Module		
Power Supply	DC 3.30 V		
Frequency Range	2412 MHz - 2472 MHz		
Max. RF Output Power	Peak Power	Ant. 1 (SISO)	802.11ax(HE20): 25.86 dBm 802.11ax(HE40): 23.86 dBm
		Ant. 2 (SISO)	802.11ax(HE20): 25.77 dBm 802.11ax(HE40): 23.34 dBm
		Ant. 1 + Ant. 2 (MIMO)	802.11ax(HE20): 28.81 dBm 802.11ax(HE40): 26.62 dBm
	Average Power	Ant. 1 (SISO)	802.11ax(HE20): 15.03 dBm 802.11ax(HE40): 11.76 dBm
		Ant. 2 (SISO)	802.11ax(HE20): 14.98 dBm 802.11ax(HE40): 11.76 dBm
		Ant. 1 + Ant. 2 (MIMO)	802.11ax(HE20): 17.93 dBm 802.11ax(HE40): 14.79 dBm
Modulation Type	OFDMA		
Number of Channels	13 Channels		
Antenna type	Metal press Ant		
Antenna Peak Gain	Ant1: -0.94 dBi / Ant2: 1.50 dBi		
Date(s) of Tests	July 02, 2020 ~ September 04, 2020		
PMN (Product Marketing Number)	LGSBWAX12		
HVIN (Hardware Version Identification Number)	ETWCHMBC01		
FVIN (Firmware Version Identification Number)	MT7921_V1.0		
HMN (Host Marketing Name)	N/A		
EUT serial numbers	ETWCHMBC01-01, ETWCHMBC01-02, ETWCHMBC01-03, ETWCHMBC01-04		
EUT Cable Type.	Basic Cable Type, FFC Cable Type		

## ANTENNA CONFIGURATIONS

1. The device employs MIMO technology. Below are the possible configurations

Configurations	SISO		SDM	CDD
	Ant1	Ant2	Ant1 + Ant2	Ant1 + Ant2
802.11ax(HE20)	O	O	O	O

**Note:**

1. O = Support, X = Not Support
2. SISO = Single Input Single Output
3. SDM = Spatial Diversity Multiplexing
4. CDD = Cyclic Delay Diversity

2. Directional Gain Calculation

- If any transmit signals are correlated with each other(802.11ax\_HE20, HE40),

$$\text{Directional gain} = 10 \times \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N] \text{ dBi}$$

▣ **Antenna Gain**

2.4 GHz Band

Antenna Gain	802.11ax	Ant 0	-0.94 dBi
		Ant 1	1.50 dBi
Directional Antenna Gain	802.11ax	Ant 0 & 1	3.38 dBi

## 2. TEST METHODOLOGY

FCC KDB 558074 D01 15.247 Meas Guidance v05r02 dated April 02, 2019 entitled “guidance for compliance measurements on digital transmission system, frequency hopping spread spectrum system, and hybrid system devices and the measurement procedure described in ANSI C63.10(Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’.

### EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C. / RSS-Gen issue 5, RSS-247 issue 2.

### GENERAL TEST PROCEDURES

#### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

#### Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1GHz. Above 1GHz with 1.5m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

## DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

### 3. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

### 4. FACILITIES AND ACCREDITATIONS

#### FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of A NSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

For ISED, test facility was accepted dated February 14, 2019 (CAB identifier: KR0032).

#### EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 5. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of § 15.203

## 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95 % level of confidence.

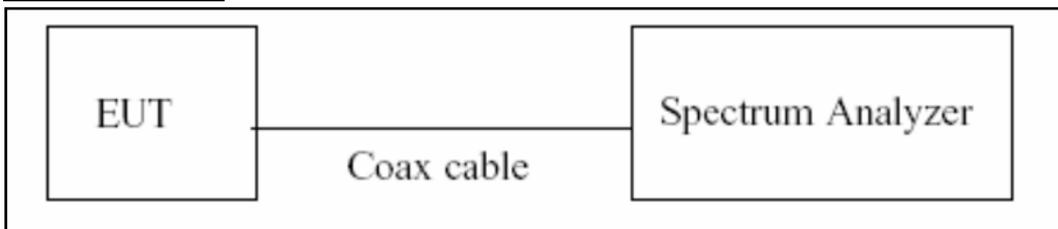
The measurement data shown herein meets or exceeds the  $U_{CISPR}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ( $\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05

## 7. DESCRIPTION OF TESTS

### 7.1. Duty Cycle

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to the zero-span measurement method.

The largest available value of RBW is 8 MHz and VBW is 50 MHz.

The zero-span method of measuring duty cycle shall not be used if  $T \leq 6.25$  microseconds. (50/6.25 = 8)

The zero-span method was used because all measured T data are  $> 6.25$  microseconds and both RBW and VBW are  $> 50/T$ .

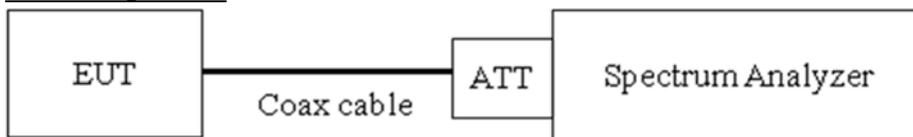
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ( $\geq$  RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep  $> 100$
6. Trace mode = Clear write
7. Measure  $T_{total}$  and  $T_{on}$
8. Calculate Duty Cycle =  $T_{on} / T_{total}$  and Duty Cycle Factor =  $10\log(1/\text{Duty Cycle})$

## 7.2. 6dB Bandwidth & 99 % Bandwidth

### Limit

The minimum permissible 6 dB bandwidth is 500 kHz.

### Test Configuration



### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to (Procedure 11.8.1 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW  $\geq$  3 x RBW
- 3) Detector = Peak
- 4) Trace mode = max hold
- 5) Sweep = auto couple
- 6) Allow the trace to stabilize
- 7) We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

### Test Procedure (99 % Bandwidth for IC)

The transmitter output is connected to the spectrum analyzer.

RBW = 1% ~ 5% of the occupied bandwidth

VBW  $\cong$  3 x RBW

Detector = Peak

Trace mode = max hold

Sweep = auto couple

Allow the trace to stabilize

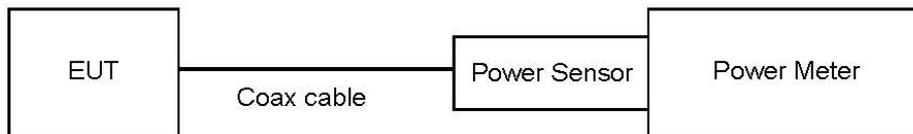
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

### 7.3. Output Power

#### Limit

The maximum permissible conducted output power is 1 Watt.

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the Power Meter.

- Peak Power (Procedure 11.9.1.3 in ANSI 63.10-2013)  
: Measure the peak power of the transmitter.
  
- Average Power (Procedure 11.9.2.3 in ANSI 63.10-2013)
  - 1) Measure the duty cycle.
  - 2) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
  - 3) Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

#### Sample Calculation

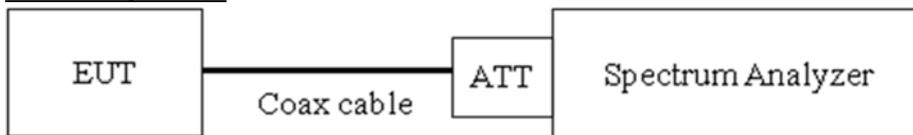
- Conducted Output Power(Peak) = Reading Value + ATT loss + Cable loss
- Conducted Output Power(Average) = Reading Value + ATT loss + Cable loss + Duty Cycle Factor

## 7.4. Power Spectral Density

### Limit

The transmitter power density average over 1-second interval shall not be greater than 8dBm in any 3kHz BW.

### Test Configuration



### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure 8.4 in KDB 558074 v05r02, Procedure 11.10.2 in ANSI 63.10-2013.

The spectrum analyzer is set to :

- 1) Set analyzer center frequency to DTS channel center frequency.
  - 2) Span = 1.5 times the DTS channel bandwidth.
  - 3)  $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$ .
  - 4)  $VBW \geq 3 \times RBW$ .
  - 5) Sweep = auto couple
  - 6) Detector = peak
  - 7) Trace Mode = max hold
  - 8) Allow trace to fully stabilize.
  - 9) Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### Sample Calculation

- Power Spectral Density = Reading Value + ATT loss + Cable loss

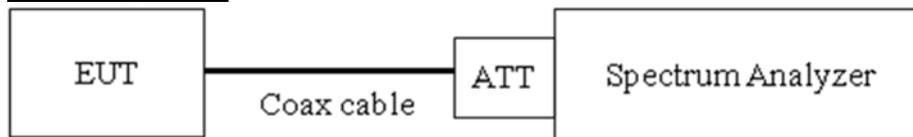
## 7.5. Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions

### Limit

The maximum conducted (Average) output power was used to demonstrate compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

[ Conducted > 20 dBc ]

### Test Configuration



### Test Procedure

The transmitter output is connected to the spectrum analyzer.

(Procedure 11.11 in ANSI 63.10-2013)

- 1) RBW = 100 kHz
- 2) VBW  $\geq$  3 x RBW
- 3) Set span to encompass the spectrum to be examined
- 4) Detector = Peak
- 5) Trace Mode = max hold
- 6) Sweep time = auto couple
- 7) Ensure that the number of measurement points  $\geq$  2 x Span/RBW
- 8) Allow trace to fully stabilize.
- 9) Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 25 GHz range with the transmitter set to the lowest, middle, and highest channels.

**Factors for frequency**

Freq(MHz)	Factor(dB)
30	19.94
100	19.98
200	20.02
300	20.09
400	20.12
500	20.10
600	20.13
700	20.15
800	20.17
900	20.19
1000	20.21
2000	20.36
2400	20.41
2412	20.48
2437	20.48
2462	20.48
2500	20.52
3000	20.56
4000	20.62
5000	20.71
6000	20.74
7000	20.74
8000	20.99
9000	21.09
10000	21.15
11000	21.22
12000	21.27
13000	21.30
14000	21.35
15000	21.41
16000	21.42
17000	21.45
18000	21.51
19000	21.52
20000	21.57
21000	21.59
22000	21.63
23000	21.76
24000	21.75
25000	21.19

Note : 1. 2400 ~ 2500 MHz is fundamental frequency range.

2. Factor = Attenuator loss + Cable loss

## 7.6. Radiated Test

### Limit

#### FCC

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30

#### IC

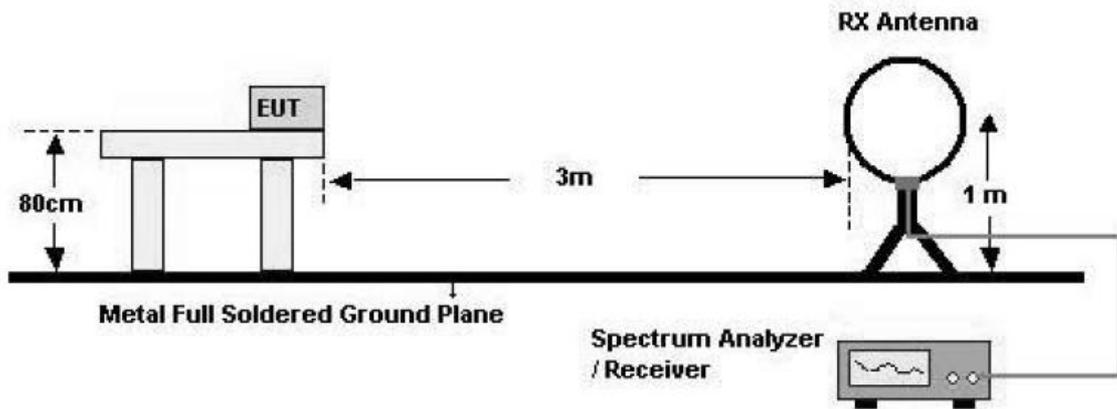
Frequency (MHz)	Field Strength (uA/m)	Measurement Distance (m)
0.009 – 0.490	6.37/F(kHz)	300
0.490 – 1.705	63.7/F(kHz)	30
1.705 – 30	0.08	30

#### FCC&IC

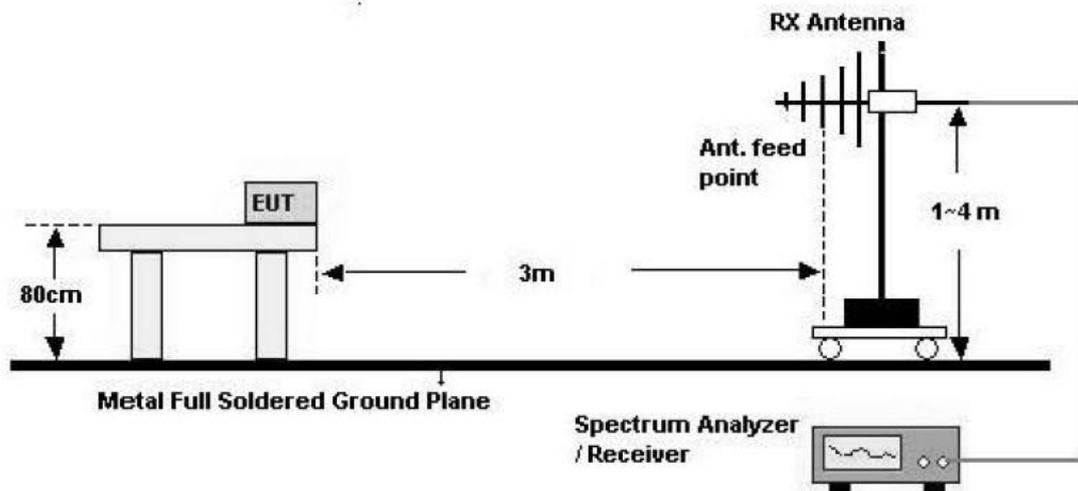
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

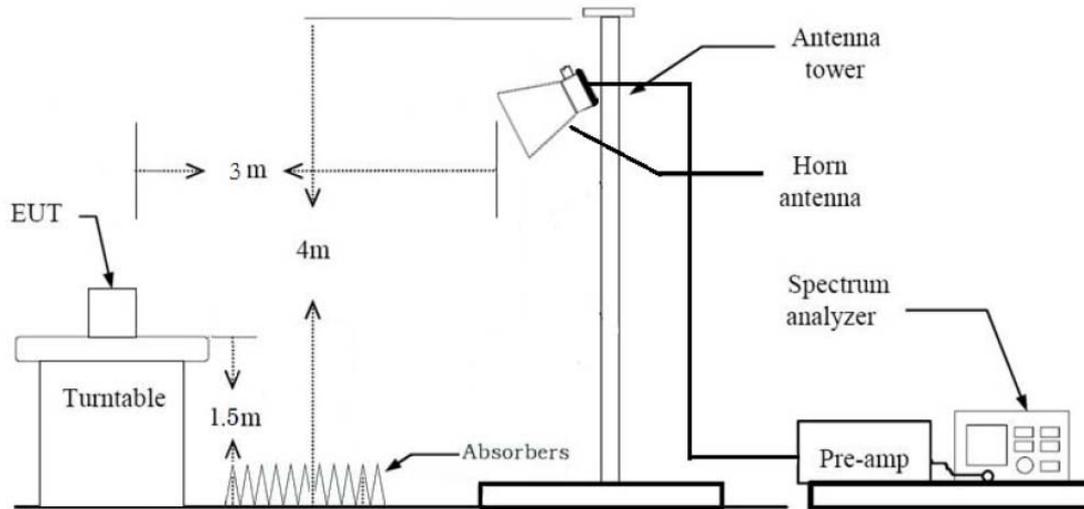
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



#### Test Procedure of Radiated spurious emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) =  $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$   
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =  $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$   
Measurement Distance : 3 m
8. Spectrum Setting
  - Frequency Range = 9 kHz ~ 30 MHz
  - Detector = Peak
  - Trace = Maxhold
  - RBW = 9 kHz
  - VBW  $\geq 3 \times$  RBW
9. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered

that's already beyond the background noise floor.

**KDB 414788 OFS and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

**Test Procedure of Radiated spurious emissions(Below 1GHz)**

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 100 kHz
    - VBW  $\geq$  3 x RBW
  - (2) Measurement Type(Quasi-peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Quasi-Peak
    - RBW = 120 kHz

※In general, (1) is used mainly
7. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

**Test Procedure of Radiated spurious emissions (Above 1 GHz)**

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.

8. Spectrum Setting (Method 8.6 in KDB 558074 v05r02, Procedure 11.12 in ANSI 63.10-2013)

(1) Measurement Type(Peak):

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW

(2) Measurement Type(Average): Duty cycle  $\geq$  98%

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle < 98%, duty cycle variations are less than  $\pm 2\%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle.
- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Distance extrapolation factor =  $20\log(\text{test distance} / \text{specific distance})$  (dB)

11. Total(Measurement Type : Peak)

$$= \text{Reading Value} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(G)} + \text{Distance Factor(D.F)}$$

Total(Measurement Type : Average, Duty cycle  $\geq$  98%)

= Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

Total(Measurement Type : Average, Duty cycle < 98%)

= Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)  
+ Duty Cycle Factor

### Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.

#### 8. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
- Detector = Peak
- Trace = Maxhold
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW

(2) Measurement Type(Average): Duty cycle  $\geq$  98%,

- Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle < 98%, duty cycle variations are less than  $\pm$ 2%

- Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz

- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW  $\geq 3 \times$  RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle.
- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Distance extrapolation factor =  $20\log(\text{test distance} / \text{specific distance})$  (dB)

11. Total(Measurement Type : Peak)

$$= \text{Reading Value} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(G)} + \text{Distance Factor(D.F)}$$

Total(Measurement Type : Average, Duty cycle  $\geq 98\%$ )

$$= \text{Reading Value} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(G)} + \text{Distance Factor(D.F)}$$

Total(Measurement Type : Average, Duty cycle < 98%)

$$= \text{Reading Value} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(G)} + \text{Distance Factor(D.F)} \\ + \text{Duty Cycle Factor}$$

## 7.7. AC Power line Conducted Emissions

### Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 <sup>(a)</sup>	56 to 46 <sup>(a)</sup>
0.50 to 5	56	46
5 to 30	60	50

<sup>(a)</sup>Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

### Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

### Sample Calculation

Quasi-peak(Final Result) = Reading Value + Correction Factor

7.8. Test RU offset for Tones

BW (MHz)	Tones (T)	RU offset	Test RU offset		
			Low	Mid	High
20	26	0~8	0	4	8
	52	37~40	37	38	40
	106	53~54	53	-	54
	242	61	-	61	-
40	26	0~17	0	9	17
	52	37~44	37	41	44
	106	53~56	53	54	56
	242	61~62	61	-	62
	484	65	-	65	-

### 7.9. Receiver Spurious Emissions

#### Limit

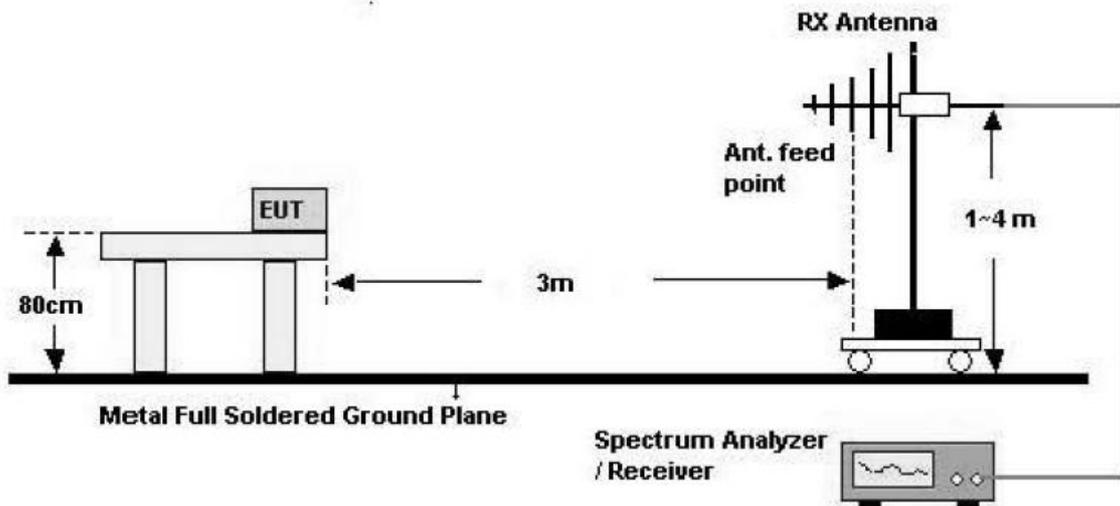
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

Measurements for compliance with the limits in table may be performed at distances other than 3 metres.

#### Test Configuration

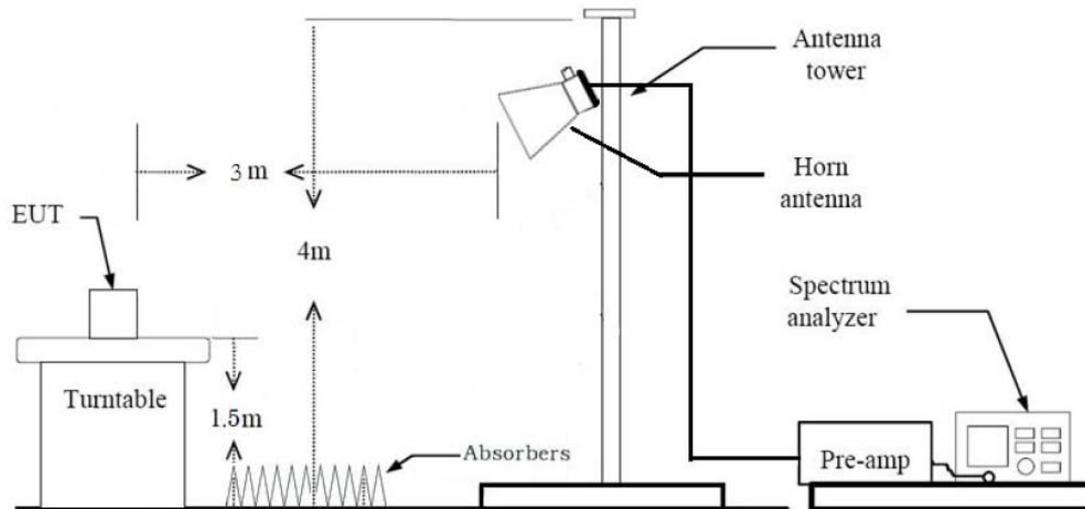
30 MHz - 1 GHz



### Test Procedure of Receiver Spurious Emissions (Below 1GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 100 kHz
    - VBW  $\geq$  3 x RBW
  - (2) Measurement Type(Quasi-peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Quasi-Peak
    - RBW = 120 kHz
7. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L)

Above 1 GHz



### Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 1 GHz – 25 GHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 1 MHz
    - VBW  $\geq$  3 x RBW
  - (2) Measurement Type(Average):
    - We performed using a reduced video BW method was done with the analyzer in linear mode

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 1 MHz
- VBW  $\geq$  3 x RBW

10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

11. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G)

**7.10. Worst case configuration and mode**

**Conducted test**

1. All data rate of operation were investigated and the worst case results are reported.

-HE20 : MCS0(26Tone, 52Tone, 106Tone, 242Tone)

MCS2(SU)

-HE40 : MCS0(26Tone, 52Tone, 106Tone, 242Tone, 484Tone)

MCS1(SU)

2. Bandedge (Conducted)

: All Mode(Channel, Tone, RU Offset) of operation were investigated and the worst case configuration results are reported

20M

Tone	Channel	RU Index
26	1	0
	11, 12, 13	8
52	1	37
	11, 12, 13	40
106	1	53
	11, 12, 13	54
242, SU	1, 11, 12, 13	61



40M

Tone	Channel	RU Index
26	3	0
	9	17
52	3	37
	9	44
106	3	53
	9	56
242	3	61
	9	62
484	3,9	65

**Radiated test**

1. Full RU(Resource Unit) mode and SU(Single Unit) mode have no difference in physical waveform.

This Report has been described only Full RU(Resource Unit) mode with worst output power

2. All modes of operation were investigated and the worst case configuration results are reported.

3. All configurations of antenna were investigated and the worst case configuration results are reported.

- Mode : Ant1(SISO), Ant2(SISO), Ant1+Ant2(CDD,SDM)

- Worstcase : Ant1+Ant2(CDD)

4. EUT Axis

- Radiated Spurious Emissions : Z

- Radiated Restricted Band Edge : X

5. All datarate of operation were investigated and the worst case datarate results are reported

- 802.11ax : 1Mbps

- 802.11g : 6Mbps

- 802.11n : MCS0

6. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.

- Position : Horizontal, Vertical, Parallel to the ground plane

7. All mode(Tone, RU Offset) of operation were investigated and the worst case configuration results are reported

Test	Tone	RU Offset
RSE	Worst case : 26 T (Highest Power)	26T : 1 (RU 4), 6 (RU 0), 11 (RU 4)
	Additional Tone : 26T (Highest PSD)	26 T : 6 (RU 0), 11 (RU 8)
Bandedge	Worst case : 26T	Low Edge: 0 High Edge: 8
	Additional Tone : 52, 106, 242 T	Low Edge: 37, 53, 61 High Edge: 40, 54, 61

**Radiated test(DBS)**

1. All modes of operation were investigated and the worst case configuration results are reported.
  - Mode : Stand alone,+ Notebook
  - Worstcase : Stand alone + Notebook
2. LGSBWAX12 were tested and the worst case results are reported.
3. EUT Axis
  - Radiated Spurious Emissions : Z
4. Test case

RSDB	5GHz WIFI		2.4GHz WIFI		Test case
	Ant1	Ant2	Ant1	Ant2	
2.4 GHz + 5 GHz RSDB Only	A			B	Case1

5. The following tables show the worst case configurations determined during testing.

(Worst case: The lowest margin condition the channels and modes were selected for test.)

Test case	Description	2.4 GHz Emission	5 GHz Emission
1	Antenna	Ant 2	Ant 1
	Channel	11	52
	Data Rate	1Mbps	MCS0
	Mode	802.11b	802.11ax(HE20)(26 Tone)(RU 8)

**AC Power line Conducted Emissions**

1. Please refer to the LGSBWAX12 [DTS] Test Report.



## 8. SUMMARY TEST OF RESULTS

### FCC Part

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	§ 15.247(a)(2)	> 500 kHz	Conducted	PASS
Conducted Maximum Output Power	§ 15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§ 15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge (Out of Band Emissions)	§ 15.247(d)	Conducted > 20 dBc		PASS
AC Power line Conducted Emissions	§ 15.207	cf. Section 7.7		PASS
Radiated Spurious Emissions	§ 15.247(d), 15.205, 15.209	cf. Section 7.6	Radiated	PASS
Radiated Restricted Band Edge	§ 15.247(d), 15.205, 15.209	cf. Section 7.6		PASS

**IC Part**

Test Description	IC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	RSS-247, 5.2	> 500 kHz	Conducted	PASS
99% Bandwidth	RSS-GEN, 6.7	N/A		PASS
Conducted Maximum Peak Output Power And e.i.r.p.	RSS-247, 5.4.	< 1 Watt <4 Watt(e.i.r.p.)		PASS
Power Spectral Density	RSS-247, 5.2	< 8 dBm / 3 kHz Band		PASS
Band Edge(Out of Band Emissions)	RSS-247, 5.5	Conducted > 20 dBc		PASS
AC Power line Conducted Emissions	RSS-GEN, 8.8	cf. Section 7.7		N/A (Note1)
Radiated Spurious Emissions	RSS-GEN, 8.9	cf. Section 7.6		Radiated
Receiver Spurious Emissions	RSS-GEN, 7	cf. Section 7.8	PASS	
Radiated Restricted Band Edge	RSS-GEN, 8.10	cf. Section 7.6	PASS	

## 9. TEST RESULT

### 9.1 DUTY CYCLE

Mode	Tone (T)	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ax (HE20)	26	MCS0	1.605	1.650	0.973	0.12
		MCS1	1.525	1.570	0.971	0.13
		MCS2	1.950	1.995	0.977	0.10
		MCS3	1.479	1.524	0.970	0.13
		MCS4	1.014	1.059	0.958	0.19
		MCS5	0.774	0.819	0.945	0.25
		MCS6	0.702	0.747	0.940	0.27
		MCS7	0.636	0.681	0.934	0.30
		MCS8	0.543	0.588	0.923	0.35
		MCS9	0.496	0.542	0.915	0.39
		MCS10	0.448	0.492	0.910	0.41
	MCS11	0.416	0.460	0.903	0.44	
	52	MCS0	1.525	1.570	0.971	0.13
		MCS1	1.485	1.530	0.971	0.13
		MCS2	1.920	1.965	0.977	0.10
		MCS3	1.460	1.505	0.970	0.13
		MCS4	0.996	1.041	0.957	0.19
		MCS5	0.768	0.812	0.946	0.24
		MCS6	0.688	0.734	0.937	0.28
		MCS7	0.632	0.678	0.932	0.31
		MCS8	0.536	0.582	0.921	0.36
		MCS9	0.492	0.538	0.914	0.39
		MCS10	0.444	0.488	0.910	0.41
	MCS11	0.412	0.458	0.900	0.46	
	106	MCS0	1.401	1.446	0.969	0.14
		MCS1	1.380	1.425	0.968	0.14
		MCS2	1.800	1.845	0.976	0.11
		MCS3	1.370	1.415	0.968	0.14
		MCS4	0.936	0.981	0.954	0.20
		MCS5	0.720	0.765	0.941	0.26
		MCS6	0.648	0.693	0.935	0.29
	MCS7	0.592	0.638	0.928	0.32	

		MCS8	0.504	0.548	0.920	0.36
		MCS9	0.463	0.509	0.910	0.41
		MCS10	0.419	0.465	0.901	0.45
		MCS11	0.385	0.429	0.897	0.47
	242	MCS0	1.212	1.257	0.964	0.16
		MCS1	1.203	1.248	0.964	0.16
		MCS2	1.572	1.617	0.972	0.12
		MCS3	1.200	1.245	0.964	0.16
		MCS4	0.822	0.867	0.948	0.23
		MCS5	0.636	0.680	0.935	0.29
		MCS6	0.572	0.618	0.926	0.34
		MCS7	0.524	0.569	0.922	0.35
		MCS8	0.449	0.494	0.910	0.41
		MCS9	0.413	0.457	0.903	0.44
MCS10	0.372	0.417	0.892	0.50		
MCS11	0.344	0.389	0.884	0.53		
802.11ax(SU)	BW 20	MCS0	0.310	0.518	0.598	2.24
		MCS1	0.305	0.523	0.583	2.34
		MCS2	0.383	0.620	0.619	2.09
		MCS3	0.307	0.541	0.567	2.47
		MCS4	0.225	0.460	0.490	3.10
		MCS5	0.187	0.423	0.442	3.54
		MCS6	0.175	0.409	0.427	3.70
		MCS7	0.163	0.397	0.409	3.88
		MCS8	0.147	0.382	0.386	4.14
		MCS9	0.140	0.374	0.373	4.28
		MCS10	0.130	0.363	0.359	4.45
		MCS11	0.121	0.356	0.340	4.68

Mode	Tone (T)	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ax (HE40)	26	MCS0	1.575	1.650	0.955	0.20
		MCS1	1.495	1.570	0.952	0.21
		MCS2	1.915	1.990	0.962	0.17
		MCS3	1.455	1.530	0.951	0.22
		MCS4	0.980	1.056	0.928	0.33
		MCS5	0.746	0.824	0.905	0.43
		MCS6	0.668	0.744	0.898	0.47
		MCS7	0.622	0.684	0.909	0.41
		MCS8	0.528	0.587	0.898	0.47
		MCS9	0.483	0.544	0.887	0.52
		MCS10	0.432	0.492	0.879	0.56
	MCS11	0.400	0.460	0.870	0.60	
	52	MCS0	1.490	1.565	0.952	0.21
		MCS1	1.450	1.525	0.951	0.22
		MCS2	1.885	1.960	0.962	0.17
		MCS3	1.425	1.505	0.947	0.24
		MCS4	0.963	1.038	0.928	0.33
		MCS5	0.738	0.813	0.908	0.42
		MCS6	0.656	0.732	0.896	0.48
		MCS7	0.600	0.676	0.888	0.52
		MCS8	0.505	0.581	0.868	0.61
		MCS9	0.460	0.535	0.860	0.66
		MCS10	0.411	0.488	0.843	0.74
	MCS11	0.380	0.457	0.832	0.80	
	106	MCS0	1.398	1.443	0.969	0.14
		MCS1	1.380	1.425	0.968	0.14
		MCS2	1.800	1.845	0.976	0.11
		MCS3	1.368	1.413	0.968	0.14
		MCS4	0.933	0.978	0.954	0.20
		MCS5	0.720	0.764	0.942	0.26
		MCS6	0.646	0.692	0.934	0.30
		MCS7	0.590	0.636	0.928	0.33
		MCS8	0.503	0.547	0.919	0.37
MCS9		0.463	0.508	0.911	0.40	
MCS10		0.419	0.464	0.903	0.44	
MCS11	0.383	0.428	0.895	0.48		

	242	MCS0	1.212	1.257	0.964	0.16
		MCS1	1.203	1.248	0.964	0.16
		MCS2	1.572	1.614	0.974	0.11
		MCS3	1.200	1.245	0.964	0.16
		MCS4	0.822	0.867	0.948	0.23
		MCS5	0.636	0.680	0.935	0.29
		MCS6	0.570	0.616	0.925	0.34
		MCS7	0.523	0.567	0.922	0.35
		MCS8	0.447	0.492	0.909	0.42
		MCS9	0.412	0.456	0.904	0.44
		MCS10	0.371	0.416	0.892	0.50
	MCS11	0.343	0.388	0.884	0.54	
	484	MCS0	1.203	1.248	0.964	0.16
		MCS1	1.200	1.245	0.964	0.16
		MCS2	1.572	1.617	0.972	0.12
		MCS3	1.194	1.239	0.964	0.16
		MCS4	0.819	0.864	0.948	0.23
		MCS5	0.636	0.680	0.935	0.29
		MCS6	0.572	0.616	0.929	0.32
		MCS7	0.524	0.569	0.922	0.35
		MCS8	0.448	0.491	0.912	0.40
		MCS9	0.411	0.455	0.902	0.45
MCS10		0.372	0.416	0.894	0.49	
MCS11	0.344	0.388	0.887	0.52		
802.11ax(SU)	BW 40	MCS0	0.310	0.526	0.589	2.30
		MCS1	0.307	0.540	0.568	2.45
		MCS2	0.385	0.653	0.589	2.30
		MCS3	0.307	0.577	0.532	2.74
		MCS4	0.225	0.495	0.455	3.42
		MCS5	0.187	0.457	0.409	3.88
		MCS6	0.173	0.443	0.391	4.08
		MCS7	0.163	0.432	0.376	4.25
		MCS8	0.147	0.417	0.353	4.52
		MCS9	0.138	0.408	0.338	4.71
		MCS10	0.129	0.399	0.323	4.91
		MCS11	0.121	0.391	0.310	5.09

☐ Test Plots\_802.11ax(HE20)

Note:

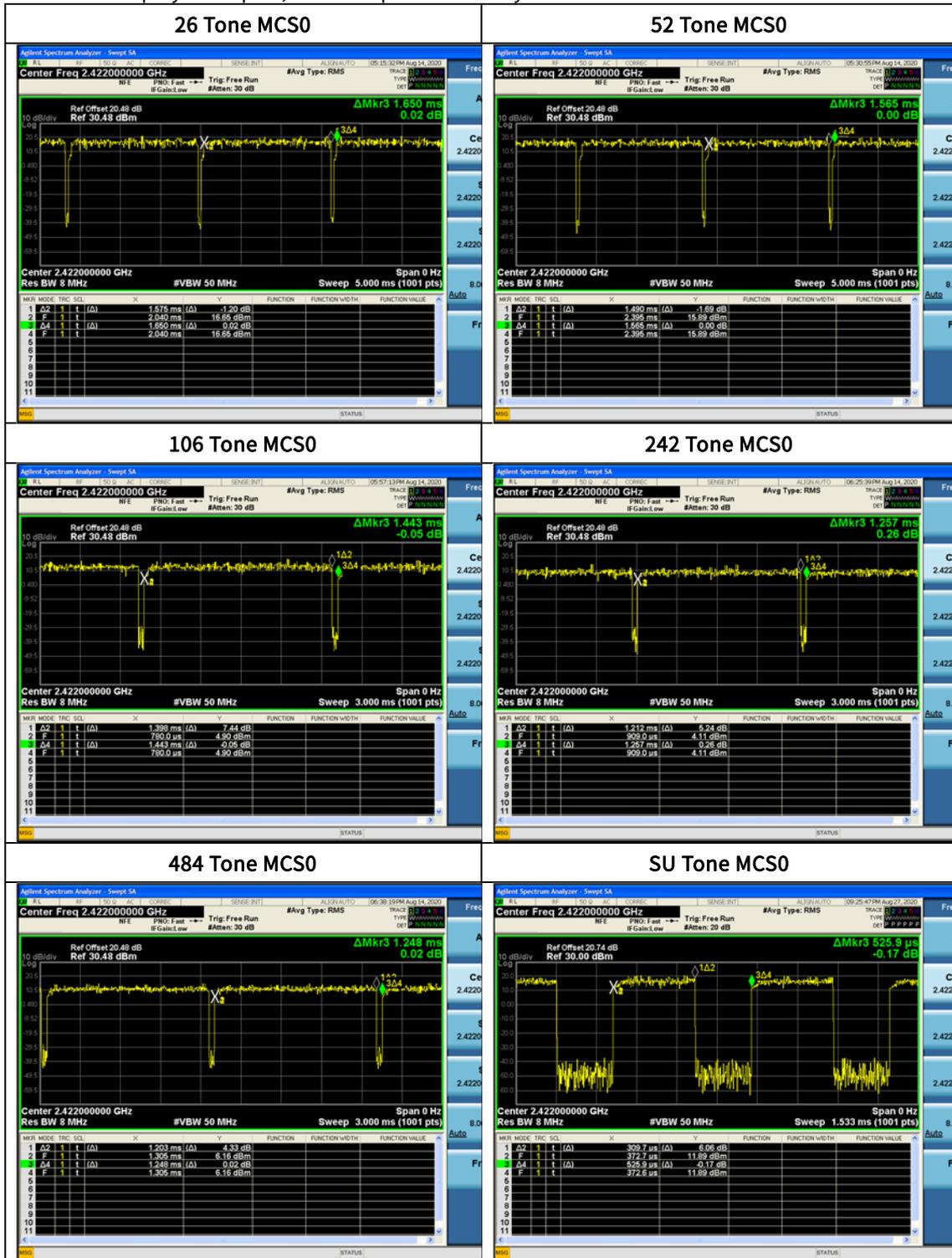
In order to simplify the report, attached plots were only the most lowest datarate.



☐ Test Plots\_802.11ax(HE40)

Note:

In order to simplify the report, attached plots were only the most lowest datarate.



9.2 6dB BANDWIDTH & 99 % BANDWIDTH

FCC

[ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	6dB BW (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	2.135	17.06	17.17	-	-
			Mid	2.702	15.12	-	17.87	18.08
			High	2.144	17.04	17.13	-	-
	2437	6	Low	2.117	17.11	17.18	-	-
			Mid	2.711	15.12	-	18.36	17.63
			High	2.171	17.09	17.18	-	-
	2462	11	Low	2.130	17.08	17.19	-	-
			Mid	2.699	15.07	-	18.37	18.27
			High	2.178	17.11	17.19	-	-
	2467	12	Low	2.118	17.12	17.18	-	-
			Mid	2.682	12.89	-	17.83	17.45
			High	2.116	17.06	17.13	-	-
2472	13	Low	2.111	17.11	17.16	-	-	
		Mid	2.681	15.06	-	16.82	16.63	
		High	2.142	17.06	17.12	-	-	

# Limit : > 500kHz



BW	Frequency [MHz]	Channel No.	RU Index	6dB BW (MHz)					
				26 T	52 T	106 T	242 T	484T	SU
HE40	2422	3	Low	2.158	16.69	16.68	18.83	-	-
			Mid	2.185	17.35	17.36	-	37.57	37.25
			High	2.131	16.62	16.67	18.83	-	-
	2437	6	Low	2.132	16.67	16.72	18.84	-	-
			Mid	2.142	17.40	17.40	-	36.36	37.18
			High	2.149	16.63	16.61	18.84	-	-
	2452	9	Low	2.099	16.66	16.69	18.89	-	-
			Mid	2.148	17.35	17.40	-	37.44	36.45
			High	2.139	16.63	16.63	18.83	-	-

# Limit : > 500kHz

[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	6dB BW (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	2.150	14.49	17.16	-	-
			Mid	2.670	15.09	-	17.20	18.16
			High	2.081	17.05	17.13	-	-
	2437	6	Low	2.110	17.07	17.19	-	-
			Mid	2.670	15.06	-	18.14	18.41
			High	2.110	17.07	17.19	-	-
	2462	11	Low	2.120	17.08	17.19	-	-
			Mid	2.680	15.05	-	18.66	16.95
			High	2.099	17.04	17.18	-	-
	2467	12	Low	2.118	17.07	17.16	-	-
			Mid	2.687	15.05	-	18.15	18.18
			High	2.085	17.03	17.16	-	-
2472	13	Low	2.118	17.06	17.16	-	-	
		Mid	2.682	15.04	-	17.87	17.62	
		High	2.117	8.28	17.15	-	-	

# Limit : > 500kHz

BW	Frequency [MHz]	Channel No.	RU Index	6dB BW (MHz)					
				26 T	52 T	106 T	242 T	484T	SU
HE40	2422	3	Low	2.142	16.67	16.70	18.86	-	-
			Mid	2.164	17.34	17.39	-	37.53	36.50
			High	2.111	16.66	16.66	18.86	-	-
	2437	6	Low	2.156	16.64	16.67	18.91	-	-
			Mid	2.153	16.07	17.37	-	36.83	36.45
			High	4.186	16.65	16.63	18.84	-	-
	2452	9	Low	2.143	16.65	16.66	18.87	-	-
			Mid	2.140	17.36	17.40	-	37.00	37.03
			High	2.151	16.64	16.65	18.86	-	-

# Limit : > 500kHz

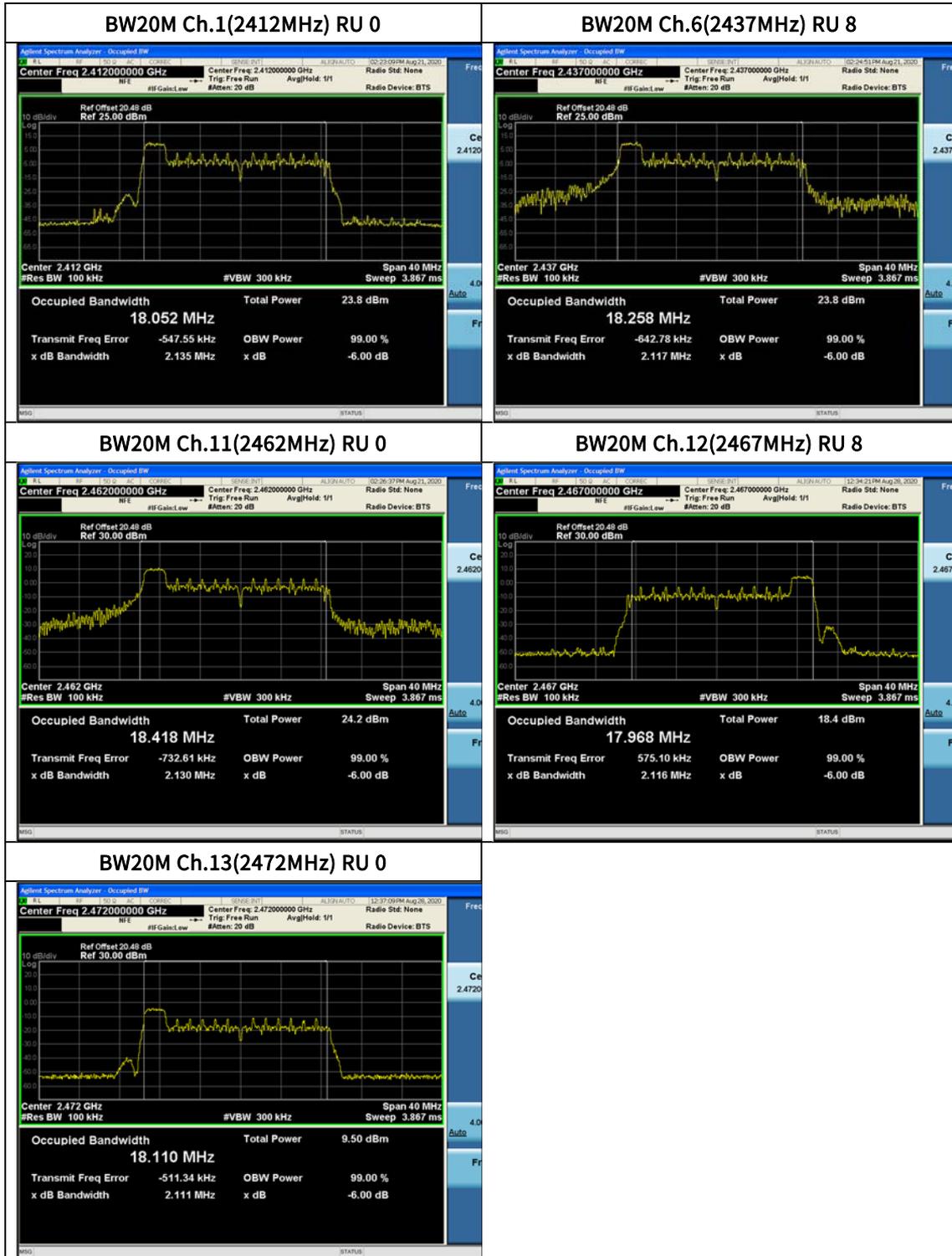


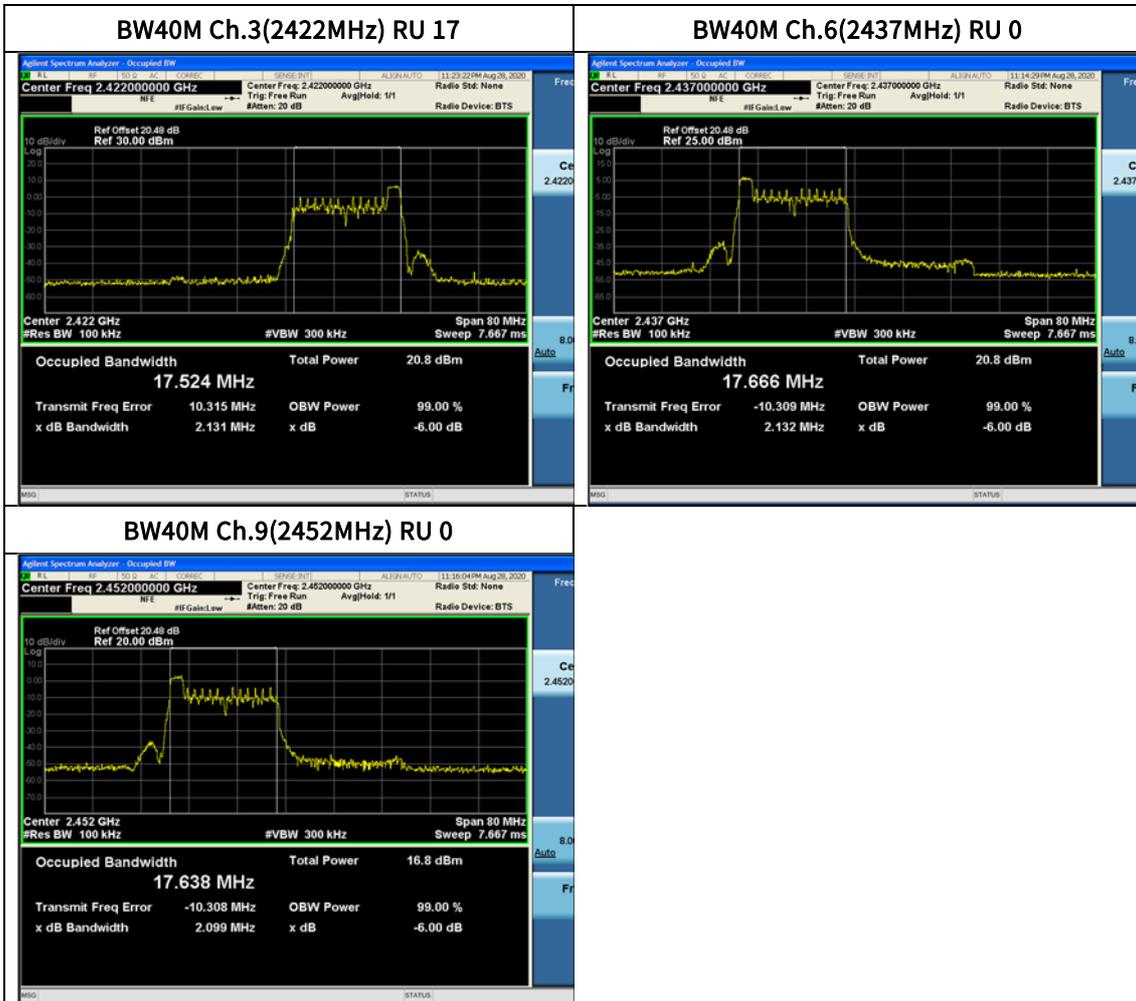
▣ Test Plots

Note:

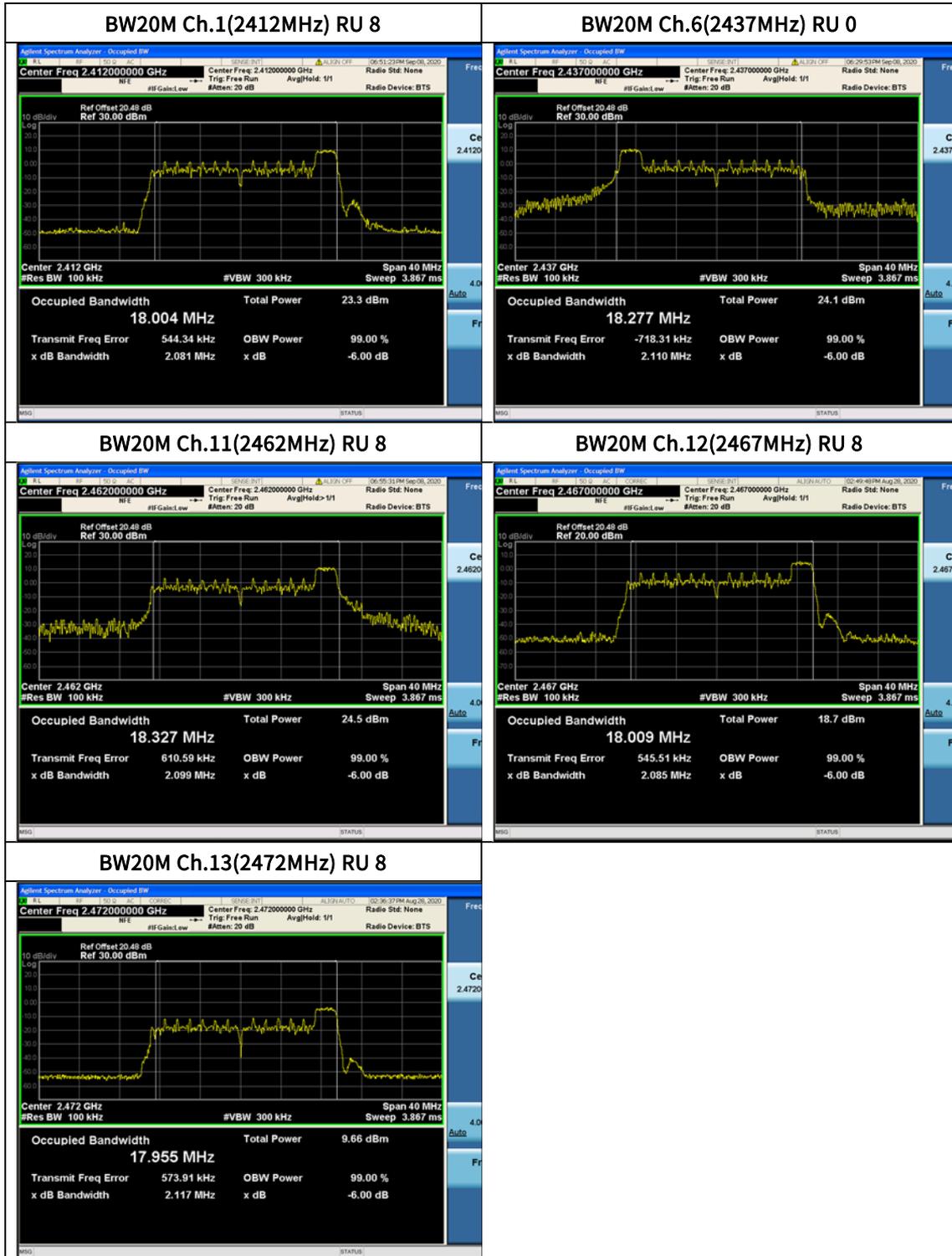
In order to simplify the report, attached plots were only the most narrow 6 dB BW channel.

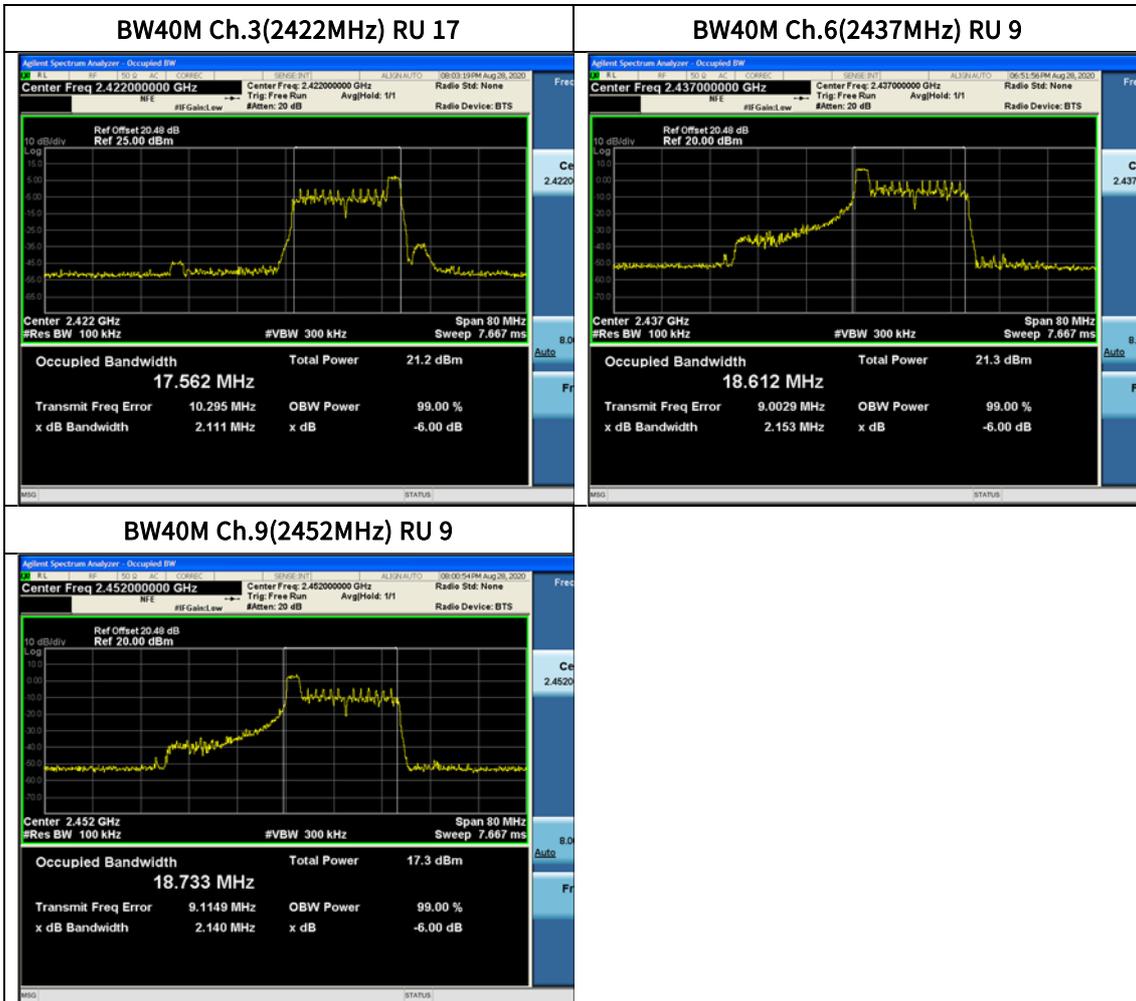
[ANT1]





[ANT2]





99 % Bandwidth(IC)

[ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	99 % Bandwidth (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	18.163	18.062	18.061	-	-
			Mid	16.863	17.018	-	18.793	18.799
			High	18.160	18.142	18.085	-	-
	2437	6	Low	19.205	18.637	18.402	-	-
			Mid	17.057	17.148	-	18.099	19.186
			High	18.884	18.687	18.570	-	-
	2462	11	Low	19.099	18.598	18.452	-	-
			Mid	17.070	17.098	-	19.084	19.083
			High	18.838	18.729	18.553	-	-
	2467	12	Low	18.240	18.117	18.029	-	-
			Mid	16.959	17.040	-	18.803	18.785
			High	18.175	18.085	18.045	-	-
2472	13	Low	18.206	18.185	18.099	-	-	
		Mid	16.963	17.022	-	18.794	18.848	
		High	18.175	18.067	18.075	-	-	

BW	Frequency [MHz]	Channel No.	RU Index	99 % Bandwidth (MHz)					
				26 T	52 T	106 T	242 T	484T	SU
HE40	2422	3	Low	17.856	17.726	17.584	19.778	-	-
			Mid	20.404	19.835	19.332	-	37.592	37.619
			High	17.766	17.760	17.594	19.506	-	-
	2437	6	Low	17.847	17.743	17.652	19.616	-	-
			Mid	20.435	19.841	19.336	-	37.591	37.678
			High	17.810	17.785	17.709	19.778	-	-
	2452	9	Low	17.858	17.733	17.585	19.668	-	-
			Mid	20.595	19.822	19.147	-	37.591	37.680
			High	17.849	17.660	17.658	19.760	-	-

[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	99 % Bandwidth (MHz)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	18.212	18.033	18.053	-	-
			Mid	16.871	16.855	-	18.799	18.779
			High	18.231	18.037	18.064	-	-
	2437	6	Low	18.750	18.552	18.383	-	-
			Mid	17.026	17.074	-	19.047	19.139
			High	18.834	18.574	18.383	-	-
	2462	11	Low	18.900	18.572	18.382	-	-
			Mid	17.060	17.033	-	19.160	19.166
			High	18.918	18.501	18.392	-	-
	2467	12	Low	18.195	18.071	18.025	-	-
			Mid	16.954	16.924	-	18.776	18.810
			High	18.177	18.054	18.067	-	-
2472	13	Low	18.191	18.040	18.035	-	-	
		Mid	16.927	16.934	-	18.785	18.826	
		High	18.158	18.034	18.032	-	-	

BW	Frequency [MHz]	Channel No.	RU Index	99 % Bandwidth (MHz)					
				26 T	52 T	106 T	242 T	484T	SU
HE40	2422	3	Low	17.785	17.728	17.605	19.405	-	-
			Mid	19.950	19.441	18.952	-	37.587	37.760
			High	17.842	17.675	17.560	19.356	-	-
	2437	6	Low	17.794	17.681	17.610	19.317	-	-
			Mid	19.985	19.635	18.911	-	37.582	37.776
			High	17.800	17.680	17.610	19.368	-	-
	2452	9	Low	17.782	17.696	17.601	19.326	-	-
			Mid	20.136	19.689	18.902	-	37.639	37.699
			High	17.801	17.771	17.607	19.231	-	-

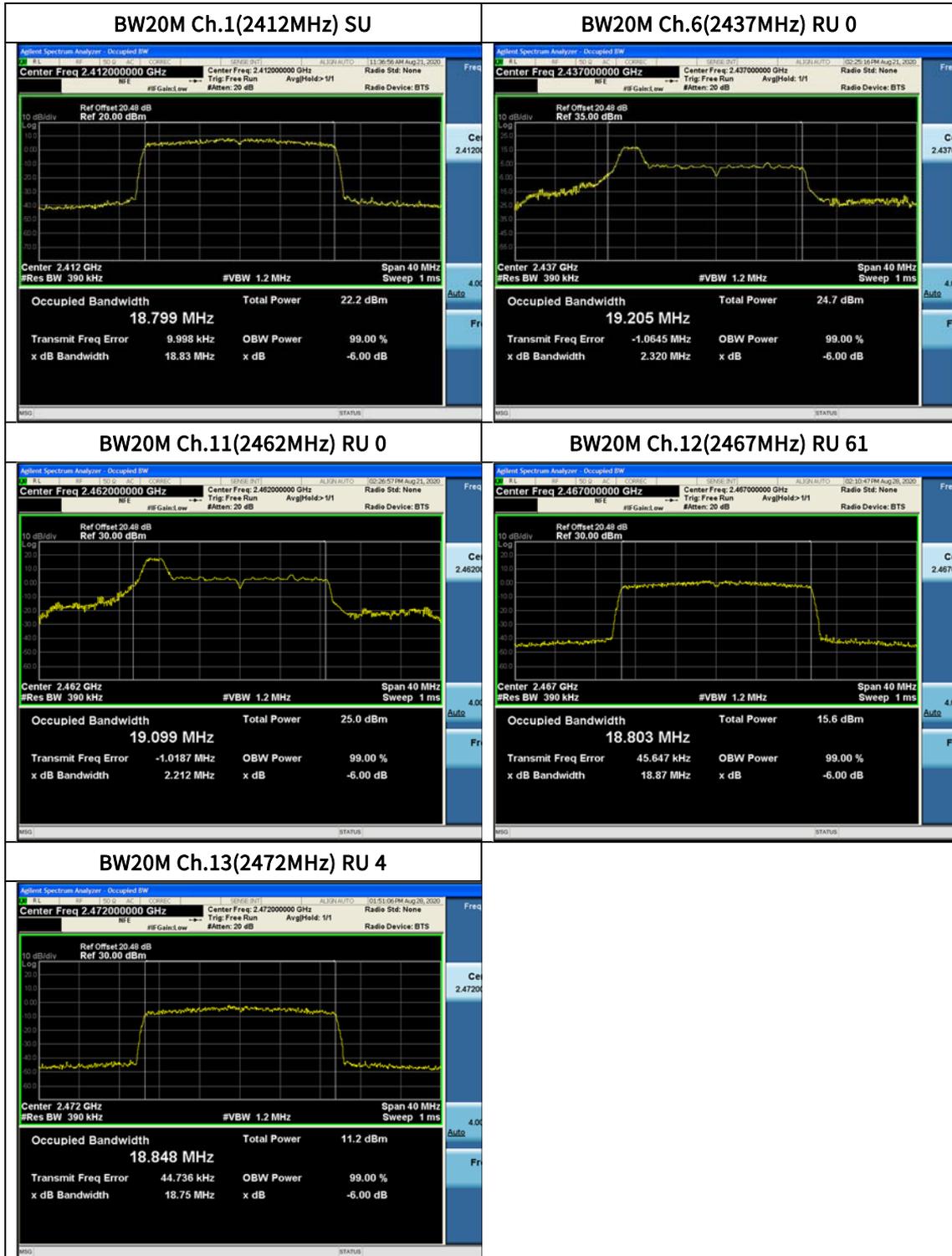


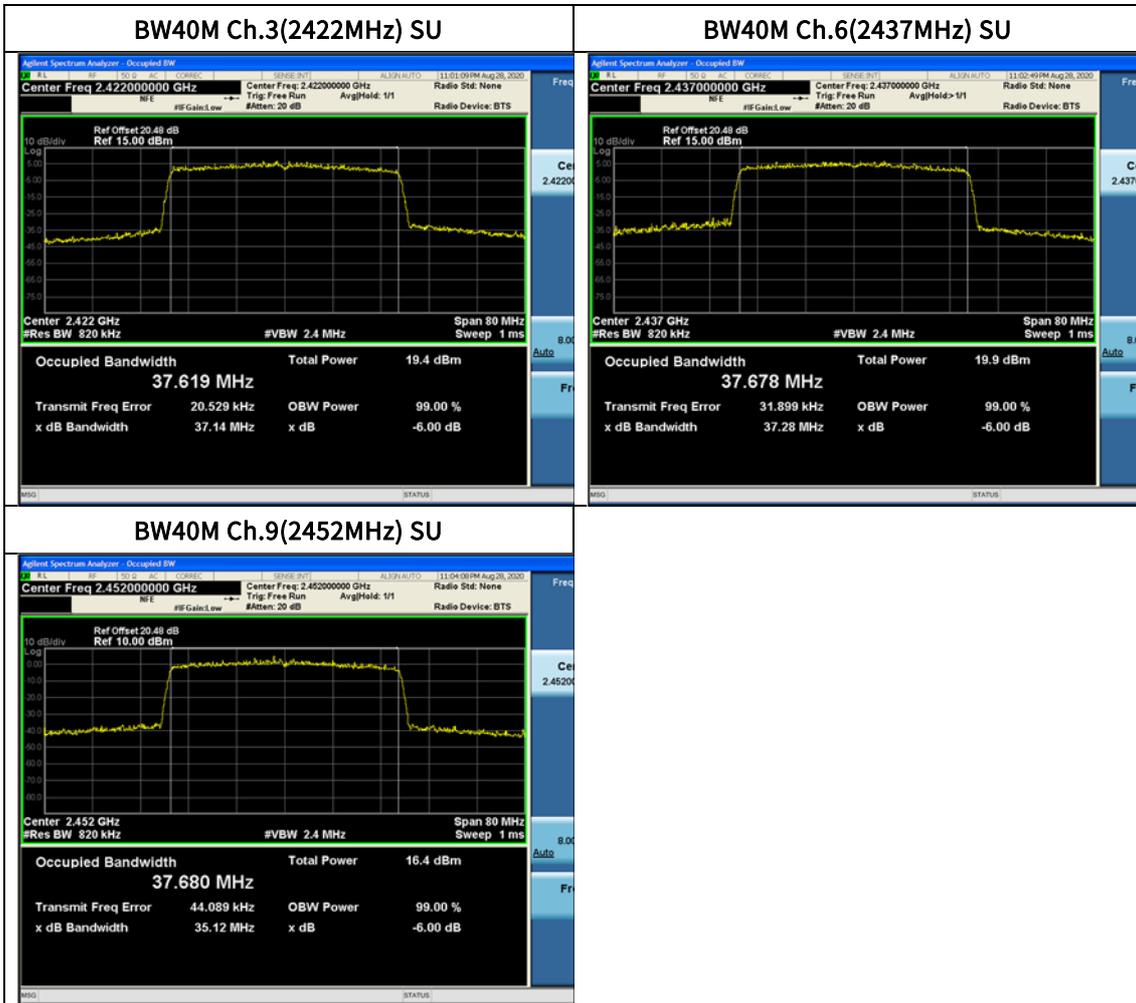
▣ Test Plots

Note:

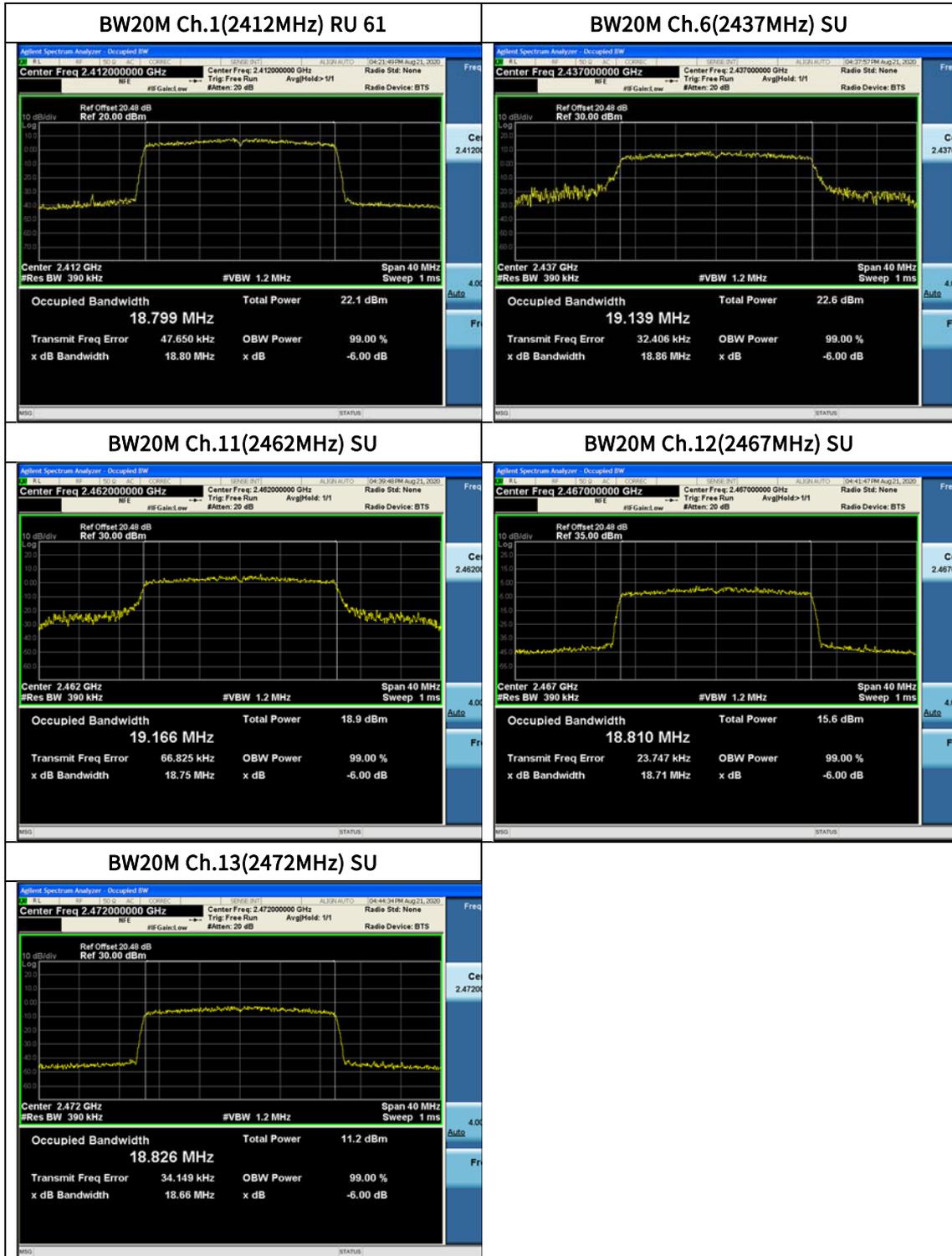
In order to simplify the report, attached plots were only the most wide 99% Bandwidth channel.

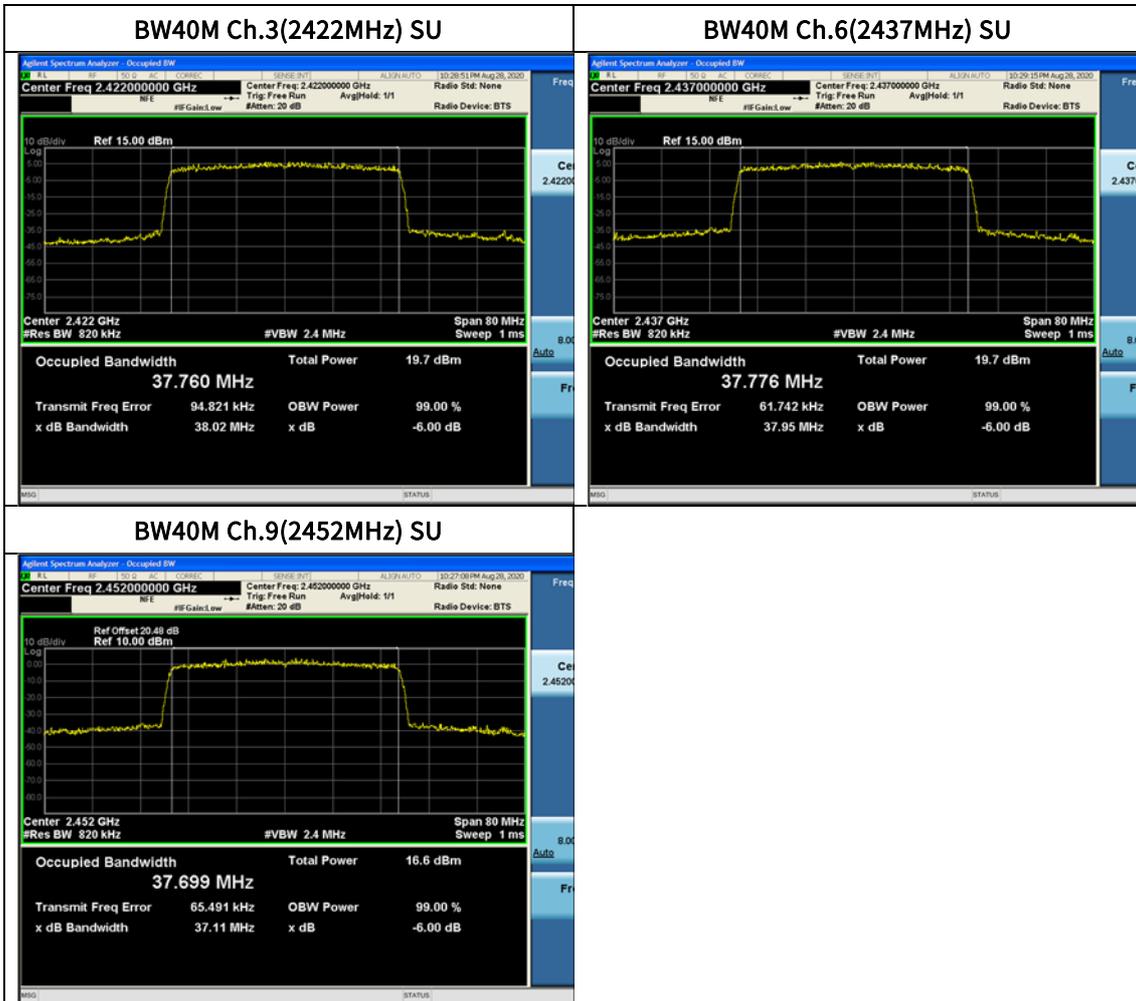
[ANT1]





[ANT2]





### 9.3 OUTPUT POWER

#### Power Level Setting

##### HE20

802.11ax Mode	Frequency [MHz]	Channel No.	26 T	52T	106T	242 T	SU
Low	2412	1	12.5	12.5	12.5	11.5	11.5
Mid	2437	6	12.5	12.5	12.5	12.5	12
High	2462	11	12.5	12.5	12.5	9	8.5
	2467	12	7	7	7	5	5
	2472	13	-2	-2	-2	3.5	0

##### HE40

802.11ax Mode	Frequency [MHz]	Channel No.	26 T	52T	106T	242 T	484 T	SU
Low	2422	3	9.5	9.5	9.5	9.5	9	8.5
Mid	2437	6	9.5	9.5	9.5	9.5	9	9
High	2452	9	5.5	5.5	5.5	5.5	5.5	5.5

**Peak Power**

1. Power Meter offset = Attenuator loss + Cable loss

2. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB.

So, 20.48 dB is offset for 2.4 GHz Band

[ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	25.71	25.86	25.83	-	-
			Mid	25.44	25.71	-	24.94	25.10
			High	25.68	25.68	25.86	-	-
	2437	6	Low	25.44	25.47	25.76	-	-
			Mid	25.80	25.53	-	25.66	25.03
			High	25.67	25.49	25.83	-	-
	2462	11	Low	25.31	25.72	25.66	-	-
			Mid	25.71	25.68	-	23.05	22.48
			High	25.65	25.76	25.70	-	-
	2467	12	Low	19.73	21.08	21.06	-	-
			Mid	20.61	20.75	-	18.75	19.03
			High	20.53	21.06	21.05	-	-
	2472	13	Low	11.62	12.13	12.18	-	-
			Mid	11.84	11.98	-	17.02	15.11
			High	11.66	12.31	12.33	-	-

# Limit : 30dBm



BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	23.40	23.86	23.26	23.03	-	-
			Mid	23.55	23.41	23.51	-	23.26	22.03
			High	23.31	23.05	22.96	23.47	-	-
	2437	6	Low	23.48	23.09	23.15	23.15	-	-
			Mid	23.36	23.26	22.86	-	23.07	22.64
			High	23.38	22.88	22.94	23.11	-	-
	2452	9	Low	18.63	19.31	18.86	19.25	-	-
			Mid	18.93	18.97	19.17	-	19.68	18.32
			High	18.50	18.88	19.34	19.18	-	-

# Limit : 30dBm

[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	25.75	25.58	25.77	-	-
			Mid	25.01	25.26	-	25.02	25.14
			High	25.53	25.66	25.59	-	-
	2437	6	Low	24.96	25.39	25.63	-	-
			Mid	25.17	25.39	-	25.46	25.08
			High	25.29	25.40	25.48	-	-
	2462	11	Low	24.85	25.45	25.61	-	-
			Mid	25.66	25.46	-	22.68	22.24
			High	25.33	25.67	25.56	-	-
	2467	12	Low	19.42	20.99	20.86	-	-
			Mid	20.14	20.73	-	18.55	18.36
			High	20.31	20.80	20.92	-	-
	2472	13	Low	11.48	12.11	12.03	-	-
			Mid	11.83	12.03	-	16.97	14.86
			High	11.36	12.25	12.09	-	-

# Limit : 30dBm



BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	22.96	23.34	22.97	22.98	-	-
			Mid	23.21	23.19	23.07	-	22.31	21.68
			High	23.02	22.96	22.88	23.10	-	-
	2437	6	Low	23.07	22.99	22.89	22.88	-	-
			Mid	23.05	23.06	22.75	-	22.54	22.22
			High	22.92	22.86	22.66	22.94	-	-
	2452	9	Low	18.44	18.86	18.62	19.01	-	-
			Mid	18.54	18.67	18.96	-	18.96	18.10
			High	18.42	18.75	19.02	19.04	-	-

# Limit : 30dBm

[MIMO]

1. Total peak power for MIMO= $10\text{LOG}((10^{(\text{Ant1 Total power / 10})})+(10^{(\text{Ant2 Total power / 10})}))$

BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	28.74	28.73	28.81	-	-
			Mid	28.24	28.50	-	27.99	28.13
			High	28.59	28.68	28.74	-	-
	2437	6	Low	28.22	28.44	28.71	-	-
			Mid	28.51	28.47	-	28.57	28.07
			High	28.49	28.46	28.67	-	-
	2462	11	Low	28.10	28.60	28.65	-	-
			Mid	28.70	28.58	-	25.88	25.19
			High	28.50	28.73	28.64	-	-
	2467	12	Low	22.54	24.05	23.97	-	-
			Mid	23.39	23.75	-	21.66	21.70
			High	23.43	23.94	24.00	-	-
2472	13	Low	14.56	15.13	15.12	-	-	
		Mid	14.85	15.02	-	20.01	18.00	
		High	14.52	15.29	15.22	-	-	

# Limit : 30dBm



BW	Frequency [MHz]	Channel No.	RU Index	Total Peak Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	26.20	26.62	26.13	26.02	-	-
			Mid	26.39	26.31	26.31	-	25.82	24.83
			High	26.18	26.02	25.93	26.30	-	-
	2437	6	Low	26.29	26.05	26.03	26.03	-	-
			Mid	26.22	26.17	25.82	-	25.82	25.45
			High	26.17	25.88	25.81	26.04	-	-
	2452	9	Low	21.53	22.10	21.75	22.14	-	-
			Mid	21.75	21.83	22.08	-	22.35	21.17
			High	21.47	21.83	22.19	22.12	-	-

# Limit : 30dBm

**Average Power**

1. Power Meter offset = Attenuator loss + Cable loss
  2. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB.
- So, 20.48 dB is offset for 2.4 GHz Band

**[ANT1]**

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	14.90	14.73	14.85	-	-
			Mid	14.86	14.69	-	13.46	13.11
			High	14.38	14.85	15.03	-	-
	2437	6	Low	14.86	14.46	14.48	-	-
			Mid	14.61	14.58	-	14.39	13.82
			High	14.67	14.55	14.56	-	-
	2462	11	Low	14.75	14.74	14.68	-	-
			Mid	14.78	14.85	-	11.09	10.40
			High	14.71	14.81	14.80	-	-
	2467	12	Low	9.23	9.29	9.45	-	-
			Mid	9.56	9.31	-	7.12	7.35
			High	9.58	9.69	9.81	-	-
	2472	13	Low	0.21	0.46	0.47	-	-
			Mid	0.60	0.46	-	5.58	2.28
			High	0.56	0.72	0.79	-	-

# Limit : 30dBm

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	11.36	11.16	11.11	11.28	-	-
			Mid	11.65	11.25	11.26	-	11.27	11.02
			High	11.58	11.18	11.24	11.10	-	-
	2437	6	Low	11.53	11.29	11.38	11.24	-	-
			Mid	11.76	11.46	11.19	-	11.29	11.27
			High	11.34	11.06	11.00	11.42	-	-
	2452	9	Low	7.43	7.14	7.09	7.81	-	-
			Mid	7.71	7.21	7.27	-	7.81	7.70
			High	7.48	7.03	7.19	7.43	-	-

# Limit : 30dBm

[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	14.81	14.52	14.74	-	-
			Mid	14.98	14.56	-	13.31	12.99
			High	14.88	14.70	14.77	-	-
	2437	6	Low	14.84	14.59	14.28	-	-
			Mid	14.89	14.33	-	14.27	13.83
			High	14.82	14.32	14.40	-	-
	2462	11	Low	14.74	14.48	14.56	-	-
			Mid	14.84	14.53	-	10.88	10.44
			High	14.87	14.54	14.69	-	-
	2467	12	Low	9.40	8.99	9.05	-	-
			Mid	9.68	8.97	-	6.88	7.18
			High	9.59	9.30	9.70	-	-
2472	13	Low	0.40	0.46	0.47	-	-	
		Mid	0.65	0.46	-	5.34	2.16	
		High	0.66	0.46	0.70	-	-	

# Limit : 30dBm

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	11.36	11.16	11.11	11.28	-	-
			Mid	11.65	11.25	11.26	-	11.27	11.02
			High	11.58	11.18	11.24	11.10	-	-
	2437	6	Low	11.53	11.29	11.38	11.24	-	-
			Mid	11.76	11.46	11.19	-	11.29	11.27
			High	11.34	11.06	11.00	11.42	-	-
	2452	9	Low	7.43	7.14	7.09	7.81	-	-
			Mid	7.71	7.21	7.27	-	7.81	7.70
			High	7.48	7.03	7.19	7.43	-	-

# Limit : 30dBm

[MIMO]

1. Total average power for MIMO= $10\text{LOG}((10^{\wedge}(\text{Ant1 Total power} / 10)) + (10^{\wedge}(\text{Ant2 Total power} / 10)))$

BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	17.87	17.63	17.80	-	-
			Mid	17.93	17.63	-	16.38	16.02
			High	17.65	17.78	17.91	-	-
	2437	6	Low	17.86	17.53	17.39	-	-
			Mid	17.76	17.46	-	17.33	16.84
			High	17.75	17.44	17.49	-	-
	2462	11	Low	17.75	17.62	17.63	-	-
			Mid	17.82	17.70	-	13.97	13.39
			High	17.80	17.68	17.75	-	-
	2467	12	Low	12.33	12.15	12.26	-	-
			Mid	12.63	12.15	-	10.01	10.22
			High	12.60	12.51	12.76	-	-
	2472	13	Low	3.32	3.47	3.48	-	-
			Mid	3.64	3.47	-	8.47	5.19
			High	3.62	3.55	3.75	-	-

# Limit : 30dBm



BW	Frequency [MHz]	Channel No.	RU Index	Total Average Power (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	14.40	14.07	14.00	14.08	-	-
			Mid	14.66	14.22	14.19	-	14.25	14.10
			High	14.62	14.14	14.13	14.01	-	-
	2437	6	Low	14.54	14.08	14.26	14.02	-	-
			Mid	14.79	14.33	14.15	-	14.22	14.23
			High	14.48	14.01	13.94	14.21	-	-
	2452	9	Low	10.48	10.08	10.02	10.86	-	-
			Mid	10.76	10.20	10.19	-	10.77	10.67
			High	10.60	10.07	10.11	10.74	-	-

# Limit : 30dBm

### 9.4 POWER SPECTRAL DENSITY

**Note :**

1. Spectrum reading values are not plot data.

The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset = Attenuator loss + Cable loss

3. 20.48 dB is offset for 2.4 GHz Band.

[ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	-2.791	-3.964	-6.189	-	-
			Mid	-3.310	-5.057	-	-12.128	-12.728
			High	-3.679	-5.055	-7.281	-	-
	2437	6	Low	-3.307	-5.167	-7.463	-	-
			Mid	-1.979	-3.604	-	-9.696	-12.327
			High	-3.081	-5.251	-7.974	-	-
	2462	11	Low	-3.279	-4.777	-8.064	-	-
			Mid	-3.158	-4.980	-	-13.925	-16.002
			High	-2.729	-4.981	-7.650	-	-
	2467	12	Low	-9.044	-10.032	-12.959	-	-
			Mid	-7.023	-9.942	-	-18.236	-19.296
			High	-7.544	-10.045	-12.715	-	-
2472	13	Low	-16.876	-19.284	-22.049	-	-	
		Mid	-16.993	-18.830	-	-20.282	-23.667	
		High	-16.581	-18.029	-20.568	-	-	

# Limit : 8dBm

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	-7.136	-8.038	-12.070	-13.992	-	-
			Mid	-5.789	-8.333	-11.357	-	-16.005	-18.245
			High	-5.845	-8.609	-10.452	-14.257	-	-
	2437	6	Low	-6.021	-8.237	-10.117	-14.154	-	-
			Mid	-6.209	-8.008	-10.510	-	-17.675	-18.902
			High	-7.165	-8.621	-9.845	-14.523	-	-
	2452	9	Low	-9.904	-11.909	-14.965	-18.369	-	-
			Mid	-10.187	-12.953	-15.150	-	-21.276	-21.574
			High	-9.464	-11.247	-15.019	-18.893	-	-

# Limit : 8dBm



[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	-3.207	-4.777	-7.153	-	-
			Mid	-2.615	-4.658	-	-10.377	-12.283
			High	-3.843	-4.557	-6.599	-	-
	2437	6	Low	-1.834	-4.615	-7.704	-	-
			Mid	-4.154	-4.767	-	-11.280	-12.641
			High	-3.444	-4.166	-7.778	-	-
	2462	11	Low	-2.418	-5.545	-7.492	-	-
			Mid	-2.453	-4.407	-	-13.891	-15.874
			High	-1.576	-4.435	-6.727	-	-
	2467	12	Low	-7.258	-11.356	-12.967	-	-
			Mid	-7.776	-9.404	-	-18.508	-18.739
			High	-9.074	-10.881	-12.320	-	-
	2472	13	Low	-17.520	-19.643	-21.378	-	-
			Mid	-17.357	-19.165	-	-19.759	-21.858
			High	-15.659	-19.172	-21.075	-	-

# Limit : 8dBm

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	-6.533	-8.517	-10.427	-13.661	-	-
			Mid	-6.716	-7.982	-9.624	-	-15.603	-17.222
			High	-6.767	-7.194	-10.217	-14.261	-	-
	2437	6	Low	-5.838	-7.571	-11.705	-13.956	-	-
			Mid	-4.432	-7.842	-11.310	-	-16.993	-18.292
			High	-5.867	-7.487	-10.984	-15.497	-	-
	2452	9	Low	-9.419	-12.278	-14.319	-17.856	-	-
			Mid	-10.074	-11.240	-14.795	-	-19.782	-21.691
			High	-11.321	-11.847	-14.322	-17.877	-	-

# Limit : 8dBm

[MIMO]

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)				
				26 T	52 T	106 T	242 T	SU
HE20	2412	1	Low	0.016	-1.341	-3.634	-	-
			Mid	0.062	-1.843	-	-8.155	-9.490
			High	-0.750	-1.789	-3.916	-	-
	2437	6	Low	0.502	-1.872	-4.572	-	-
			Mid	0.079	-1.136	-	-7.406	-9.471
			High	-0.248	-1.664	-4.865	-	-
	2462	11	Low	0.183	-2.134	-4.758	-	-
			Mid	0.219	-1.674	-	-10.898	-12.927
			High	0.896	-1.689	-4.154	-	-
	2467	12	Low	-5.050	-7.633	-9.953	-	-
			Mid	-4.373	-6.654	-	-15.360	-15.998
			High	-5.232	-7.433	-9.503	-	-
2472	13	Low	-14.176	-16.449	-18.690	-	-	
		Mid	-14.161	-15.984	-	-17.002	-19.659	
		High	-13.085	-15.553	-17.804	-	-	

# Limit : 8dBm

BW	Frequency [MHz]	Channel No.	RU Index	Total PSD (dBm)					
				26 T	52 T	106 T	242 T	484 T	SU
HE40	2422	3	Low	-3.814	-5.261	-8.161	-10.813	-	-
			Mid	-3.218	-5.144	-7.394	-	-12.789	-14.693
			High	-3.271	-4.834	-7.323	-11.249	-	-
	2437	6	Low	-2.918	-4.881	-7.829	-11.044	-	-
			Mid	-2.220	-4.914	-7.881	-	-14.310	-15.576
			High	-3.457	-5.007	-7.367	-11.972	-	-
	2452	9	Low	-6.644	-9.079	-11.620	-15.095	-	-
			Mid	-7.120	-9.002	-11.959	-	-17.455	-18.622
			High	-7.284	-8.526	-11.646	-15.345	-	-

# Limit : 8dBm

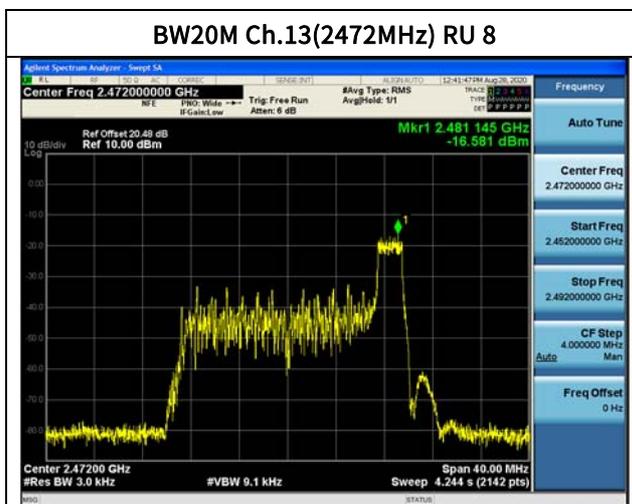
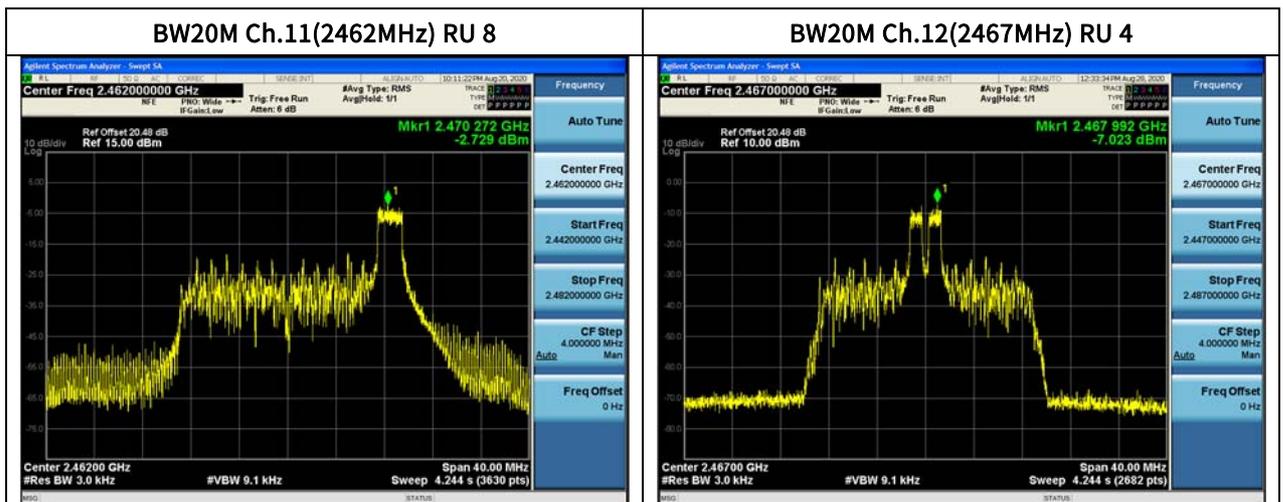
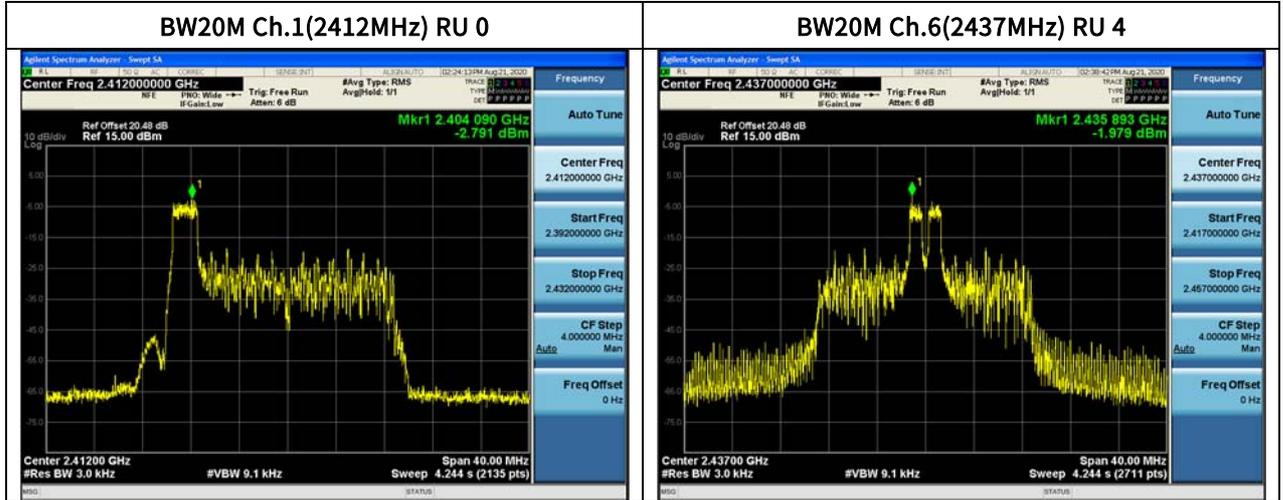


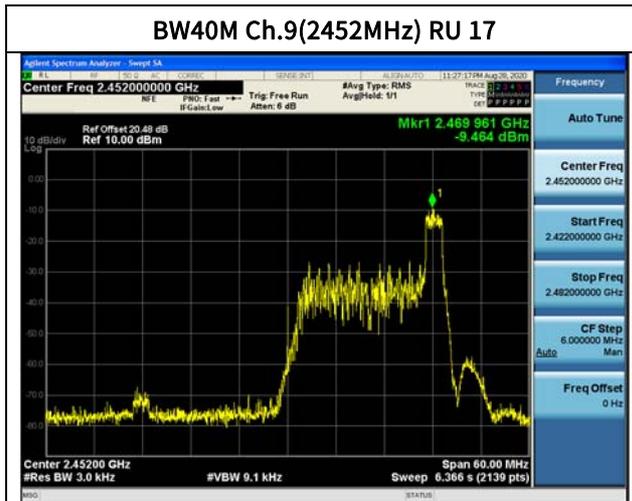
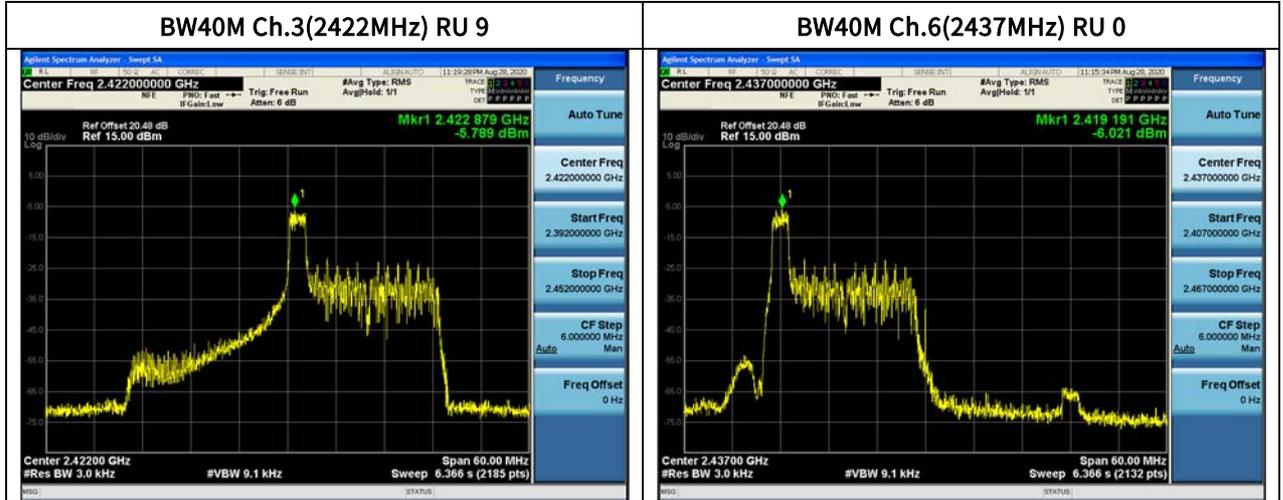
▣ Test Plots

Note:

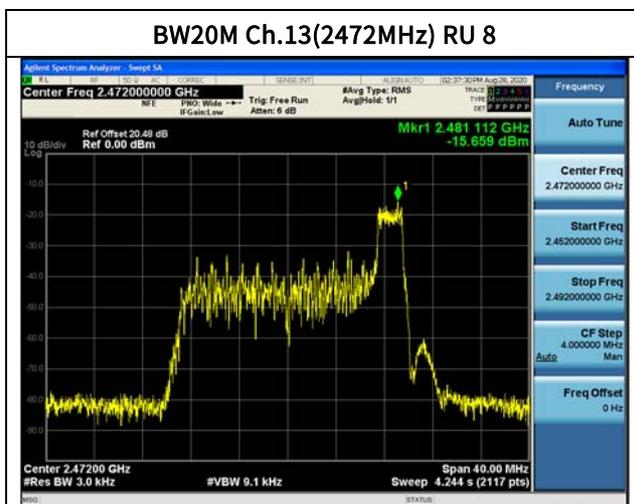
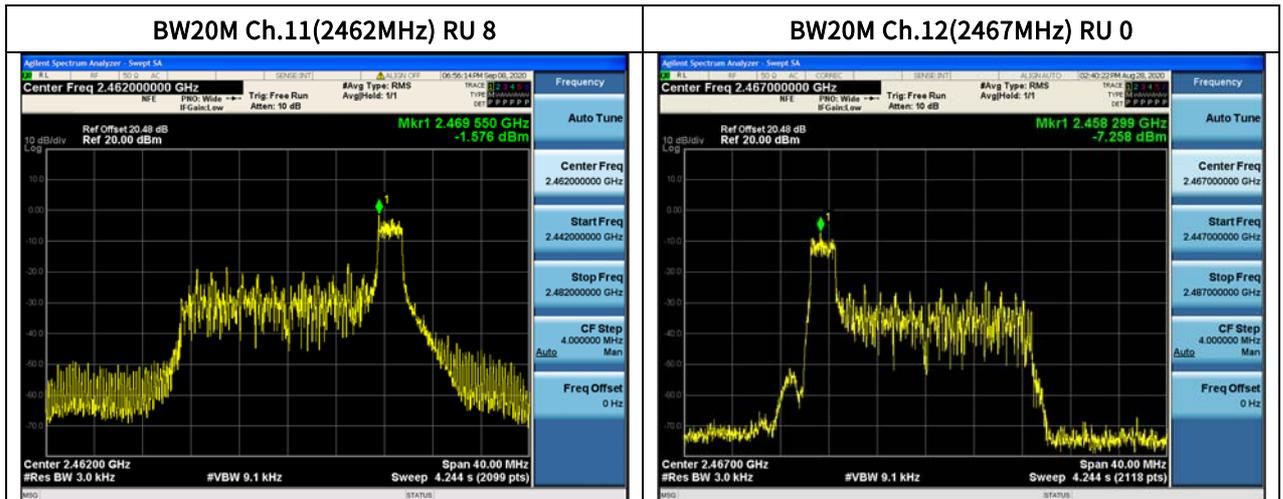
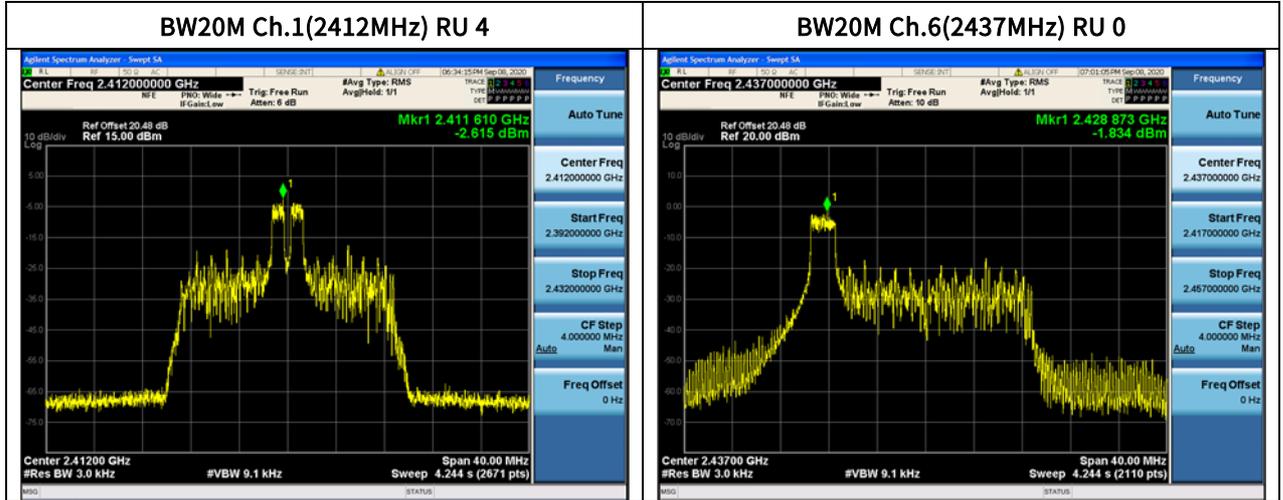
1. In order to simplify the report, attached plots were only the worstcase PSD channel.

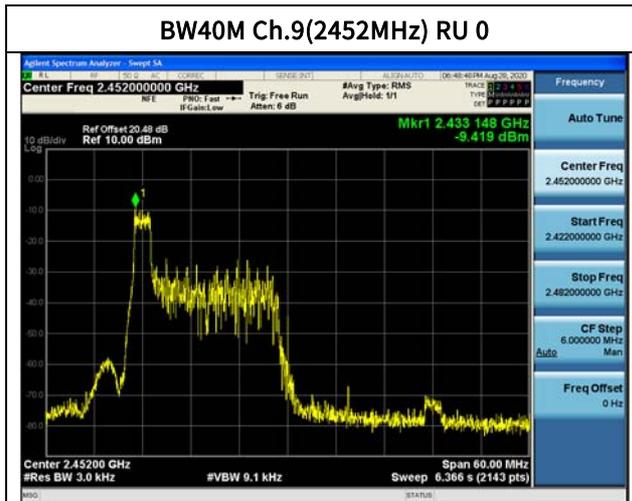
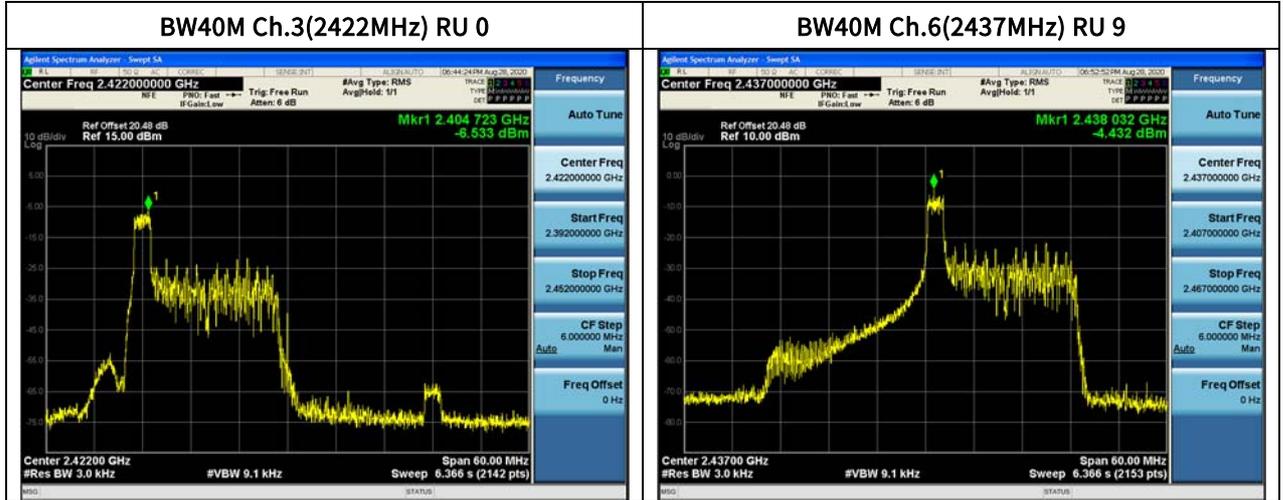
[ANT1]





[ANT2]





### 9.5 BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS

#### Band Edge

[ANT1]

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)		
					26 T	52 T	106 T
HE20	2412	1	Low	Lowest Bandedge	43.752	39.153	40.062
	2462	11	High	Highest Bandedge	52.459	55.340	48.294
	2467	12	High	Highest Bandedge	52.989	51.714	47.465
	2472	13	High	Highest Bandedge	39.257	38.665	36.594

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					242 T	SU
HE20	2412	1	Mid	Lowest Bandedge	44.400	46.659
	2462	11		Highest Bandedge	47.752	47.997
	2467	12		Highest Bandedge	44.380	45.509
	2472	13		Highest Bandedge	42.108	39.356

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)			
					26 T	52 T	106 T	242 T
HE40	2422	3	Low	Lowest Bandedge	39.319	38.363	38.721	47.998
	2452	9	High	Highest Bandedge	60.821	57.447	56.004	47.499

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					484 T	SU
HE40	2422	3	Mid	Lowest Bandedge	39.485	37.827
	2452	9		Highest Bandedge	44.467	42.672

# Limit : 20 dBc

[ANT2]

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)		
					26 T	52 T	106 T
HE20	2412	1	Low	Lowest Bandedge	44.835	44.218	42.556
	2462	11	High	Highest Bandedge	50.877	48.681	50.432
	2467	12	High	Highest Bandedge	52.220	47.796	45.302
	2472	13	High	Highest Bandedge	39.257	38.978	36.100

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					242 T	SU
HE20	2412	1	Mid	Lowest Bandedge	47.127	45.269
	2462	11		Highest Bandedge	31.629	47.567
	2467	12		Highest Bandedge	44.635	40.840
	2472	13		Highest Bandedge	42.462	40.126

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)			
					26 T	52 T	106 T	242 T
HE40	2422	3	Low	Lowest Bandedge	40.300	39.773	38.128	45.887
	2452	9	High	Highest Bandedge	54.069	55.482	47.691	47.797

# Limit : 20 dBc

BW	Frequency [MHz]	Channel No.	RU Index	Measured Position	Result (dB)	
					484 T	SU
HE40	2422	3	Mid	Lowest Bandedge	44.401	42.682
	2452	9		Highest Bandedge	42.431	42.281

# Limit : 20 dBc

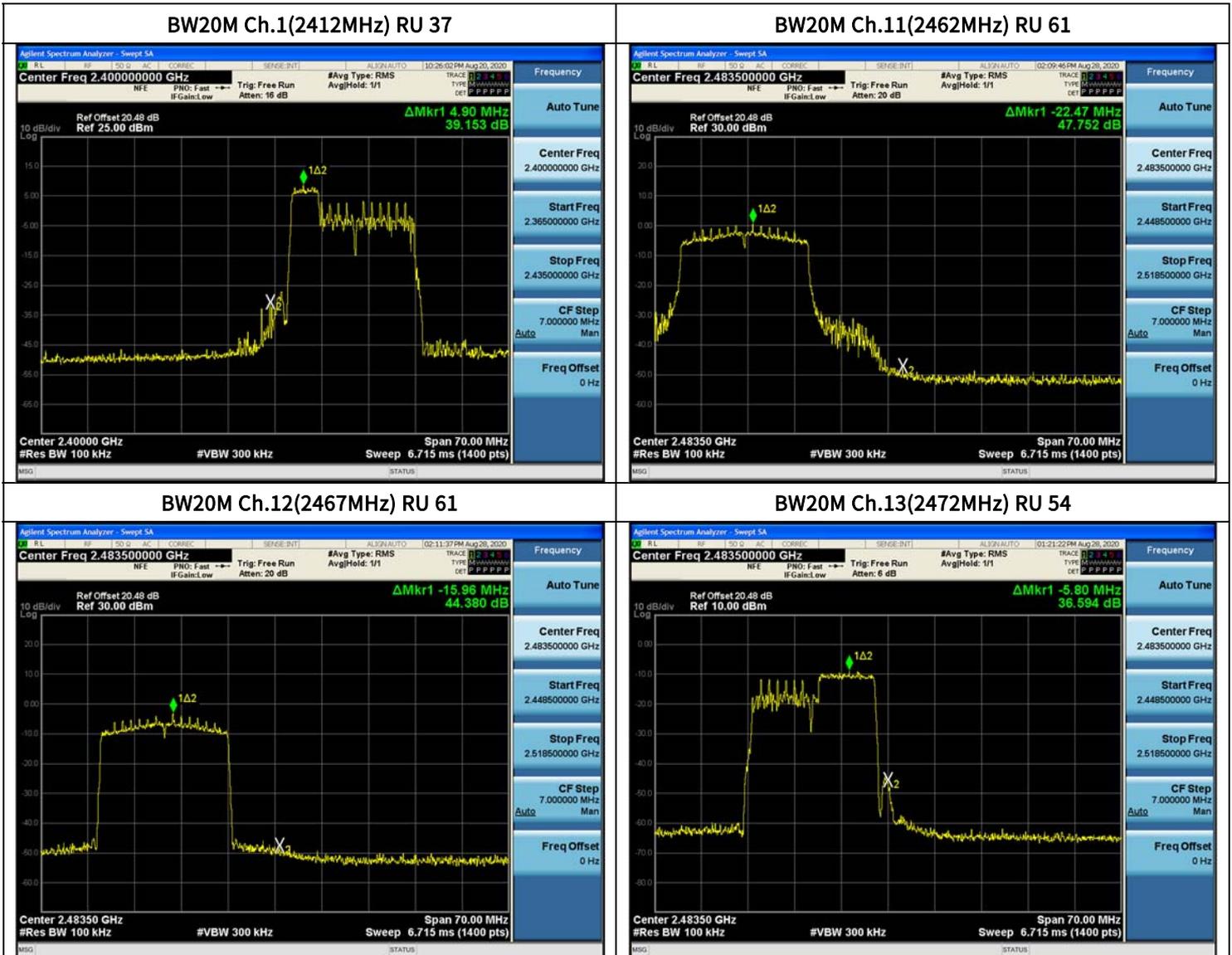


☐ Test Plots

Note:

In order to simplify the report, attached plots were only the worst case.

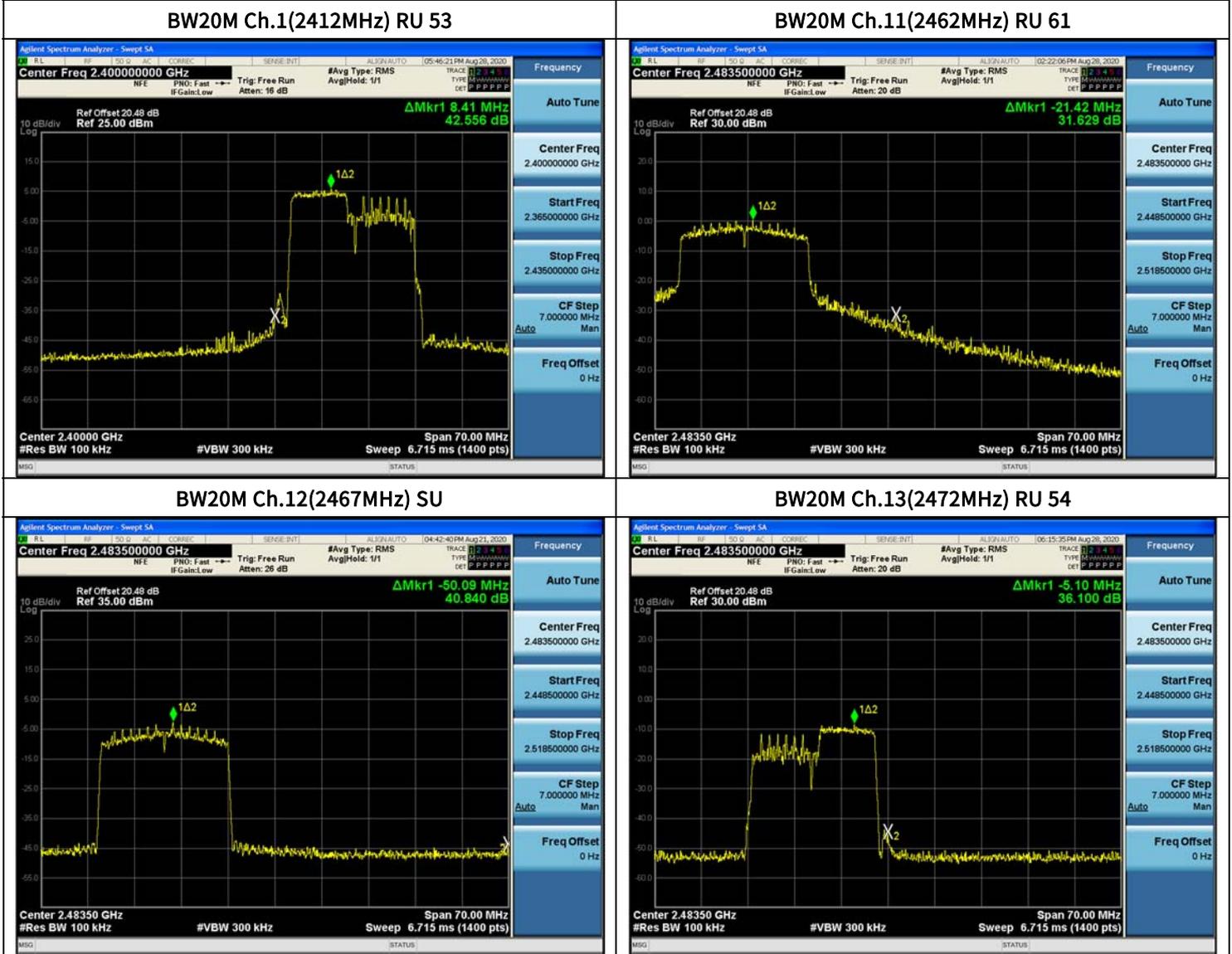
[ANT1]





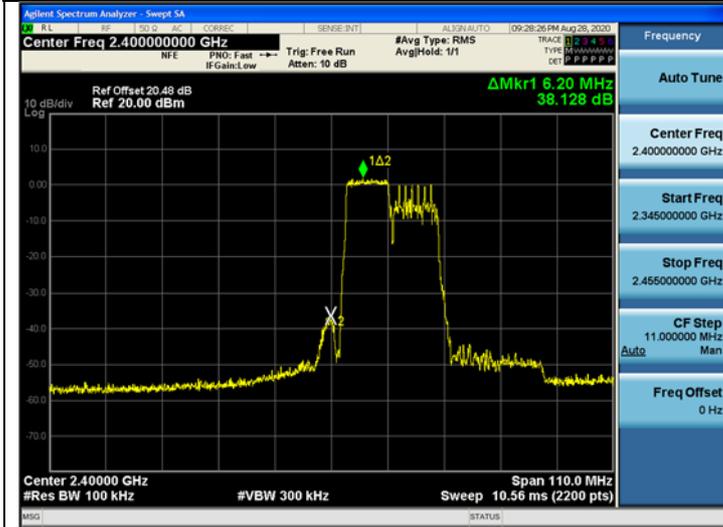


[ANT2]

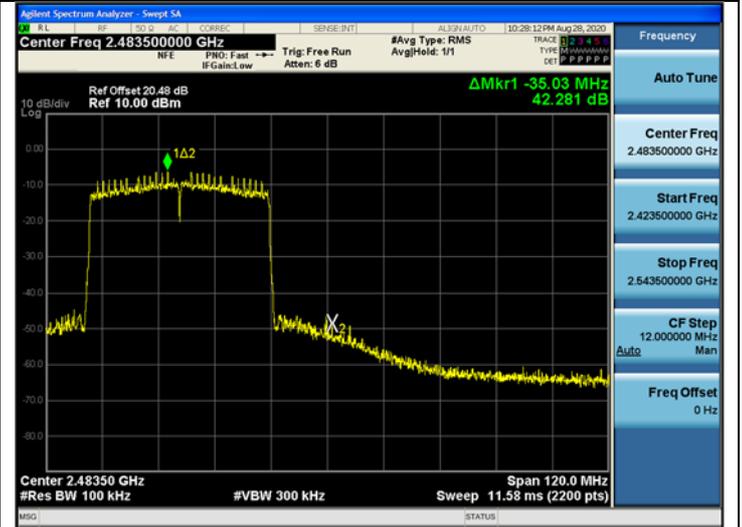




BW40M Ch.3(2422MHz) RU 53



BW40M Ch.9(2452MHz) SU





Conducted Spurious Emissions

[ANT1]

BW	ANT	Frequency [MHz]	Channel No.	RU Index	Measured Level (dBm)	Limit (dBm)
HE20	ANT1	2412	1	37RU	-45.378	-13.29
	ANT2	2412	1	53RU	-45.687	-15.05
HE40	2462	2422	3	37RU	-45.645	-16.06
	2467	2422	3	37RU	-45.982	-17.46

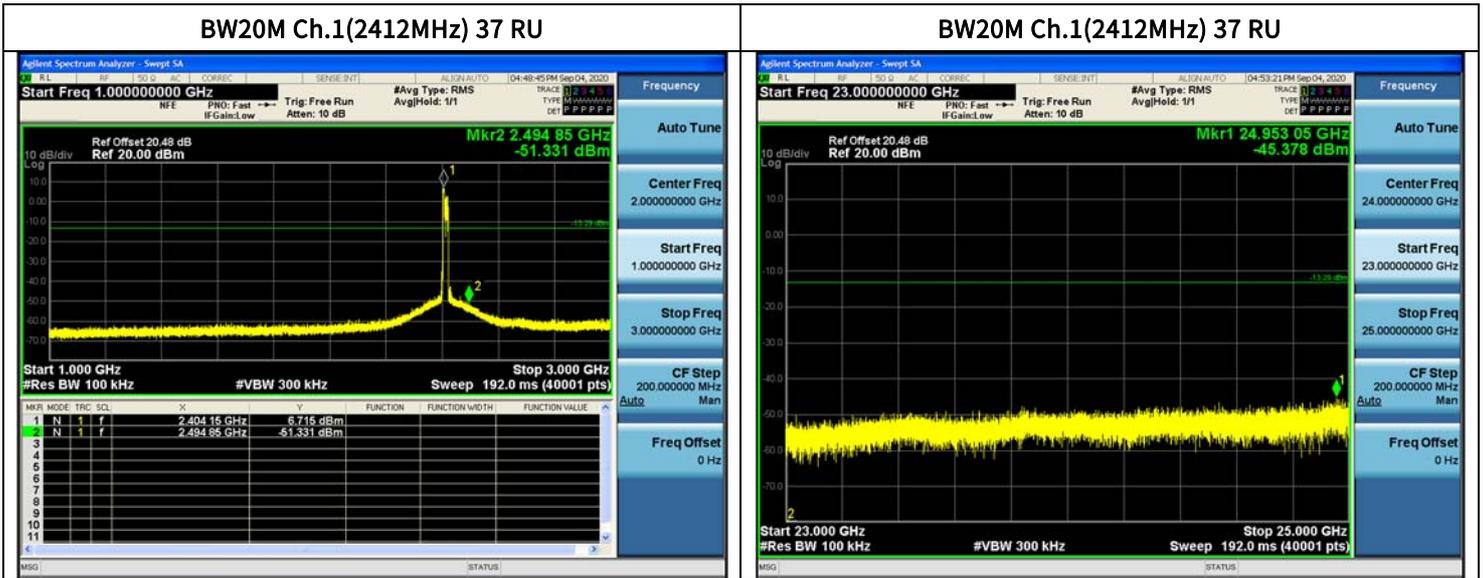


▣ Test Plots

Note:

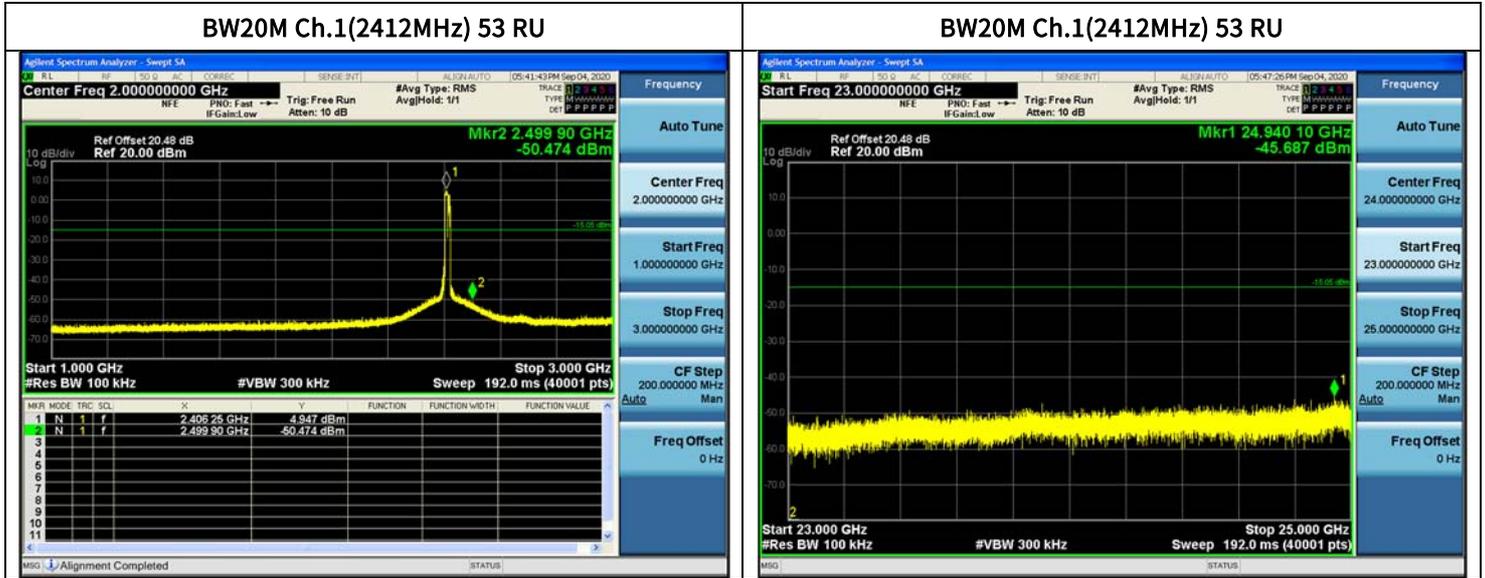
In order to simplify the report, attached plots were only the worst case.

[ANT1]\_20M



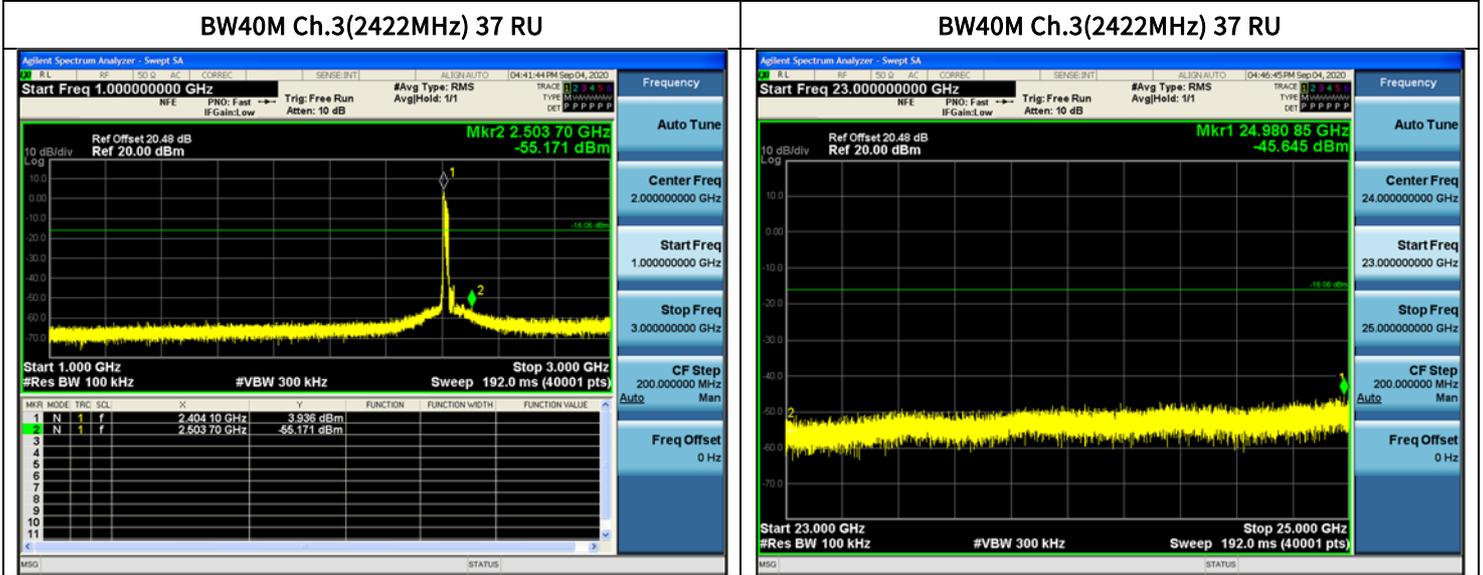


[ANT2]\_20M



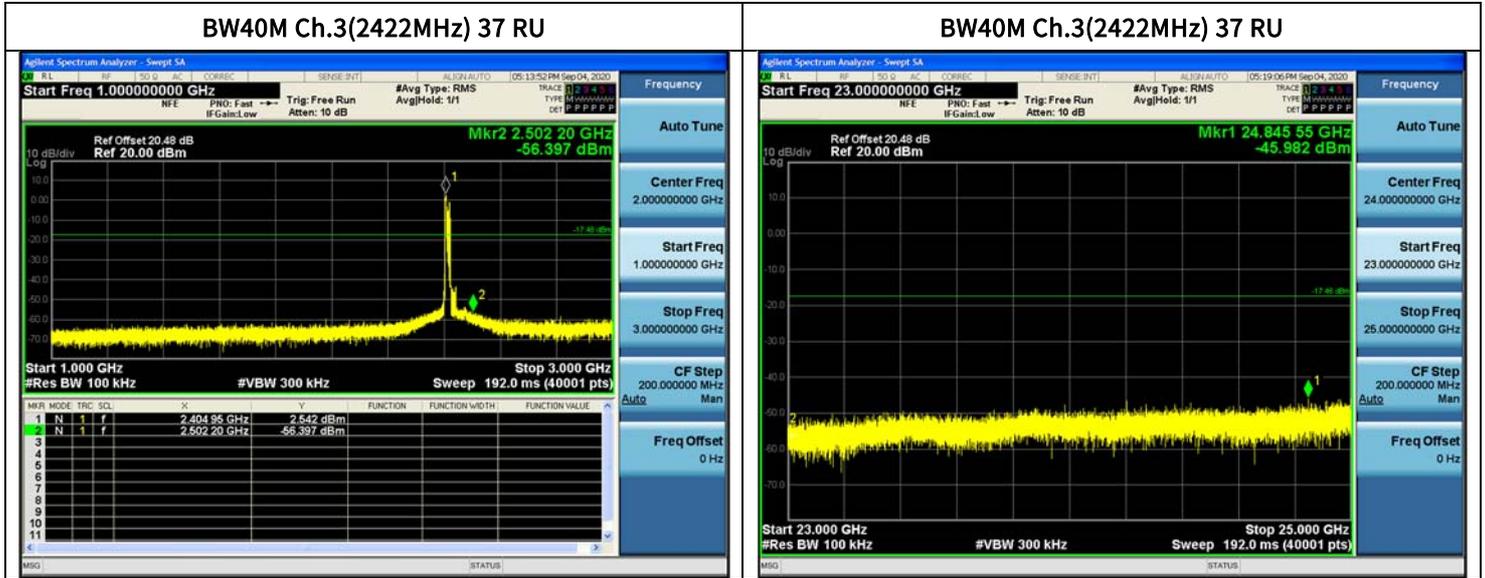


[ANT1]\_40M





[ANT2]\_40M



## 9.6 RADIATED SPURIOUS EMISSIONS

### 9.6.1 Basic Cable

Frequency Range : 9 kHz – 30MHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor =  $40\log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode

### 9.6.2 FFC Cable

#### Frequency Range : 9 kHz – 30MHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor =  $40\log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor

#### Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were madewith an instrument using Quasi peak detector mode
2. The worst case of the basic cable only was tested.

## 9.7 RADIATED SPURIOUS EMISSIONS (Above 1 GHz)

### 9.7.1 Basic Cable

#### 1. 26 Tone

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	MCS0
Operating Frequency	2412
Channel No.	01 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	48.15	0.00	3.34	V	51.49	73.98	22.49	PK
4824	35.96	0.12	3.34	V	39.42	53.98	14.56	AV
7236	50.22	0.00	8.92	V	59.14	73.98	14.84	PK
7236	31.01	0.12	8.92	V	40.05	53.98	13.93	AV
4824	48.43	0.00	3.34	H	51.77	73.98	22.21	PK
4824	37.20	0.12	3.34	H	40.66	53.98	13.32	AV
7236	51.65	0.00	8.92	H	60.57	73.98	13.41	PK
7236	31.11	0.12	8.92	H	40.15	53.98	13.83	AV



Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2437  
 Channel No.: 06 Ch

Frequency [MHz]	Reading [dBUV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBUV/m]	Limit [dBUV/m]	Margin [dB]	Measurement Type
4874	46.89	0.00	3.36	V	50.25	73.98	23.73	PK
4874	35.57	0.12	3.36	V	39.05	53.98	14.93	AV
7311	51.35	0.00	9.68	V	61.03	73.98	12.95	PK
7311	33.86	0.12	9.68	V	43.66	53.98	10.32	AV
4874	47.44	0.00	3.36	H	50.80	73.98	23.18	PK
4874	36.42	0.12	3.36	H	39.90	53.98	14.08	AV
7311	49.51	0.00	9.68	H	59.19	73.98	14.79	PK
7311	32.64	0.12	9.68	H	42.44	53.98	11.54	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBUV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBUV/m]	Limit [dBUV/m]	Margin [dB]	Measurement Type
4924	49.12	0.00	3.03	V	52.15	73.98	21.83	PK
4924	37.48	0.12	3.03	V	40.63	53.98	13.35	AV
7386	50.74	0.00	10.44	V	61.18	73.98	12.80	PK
7386	32.62	0.12	10.44	V	43.18	53.98	10.80	AV
4924	50.67	0.00	3.03	H	53.70	73.98	20.28	PK
4924	38.76	0.12	3.03	H	41.91	53.98	12.07	AV
7386	52.04	0.00	10.44	H	62.48	73.98	11.50	PK
7386	32.33	0.12	10.44	H	42.89	53.98	11.09	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.



Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422  
 Channel No.: 03 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4844	45.60	0.00	3.34	V	48.94	73.98	25.04	PK
4844	33.69	0.20	3.34	V	37.23	53.98	16.75	AV
7266	41.66	0.00	8.92	V	50.58	73.98	23.40	PK
7266	29.47	0.20	8.92	V	38.59	53.98	15.39	AV
4844	46.10	0.00	3.34	H	49.44	73.98	24.54	PK
4844	35.08	0.20	3.34	H	38.62	53.98	15.36	AV
7266	42.22	0.00	8.92	H	51.14	73.98	22.84	PK
7266	29.88	0.20	8.92	H	39.00	53.98	14.98	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2437  
 Channel No.: 06 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	45.45	0.00	3.36	V	48.81	73.98	25.17	PK
4874	34.67	0.20	3.36	V	38.24	53.98	15.74	AV
7311	45.13	0.00	9.68	V	54.81	73.98	19.17	PK
7311	29.66	0.20	9.68	V	39.54	53.98	14.44	AV
4874	46.09	0.00	3.36	H	49.45	73.98	24.53	PK
4874	35.25	0.20	3.36	H	38.82	53.98	15.16	AV
7311	45.82	0.00	9.68	H	55.50	73.98	18.48	PK
7311	29.78	0.20	9.68	H	39.66	53.98	14.32	AV



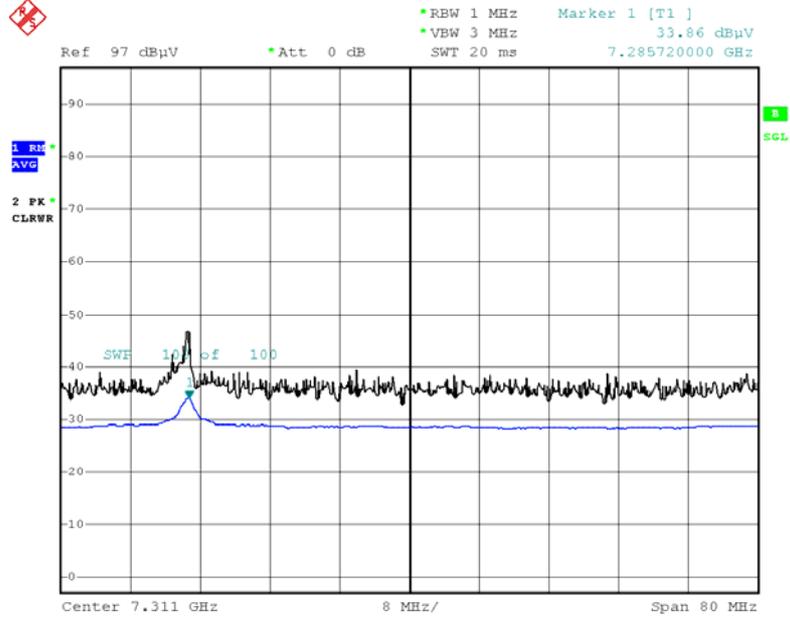
Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2452  
 Channel No.: 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4904	41.29	0.00	3.03	V	44.32	73.98	29.66	PK
4904	30.17	0.16	3.03	V	33.36	53.98	20.62	AV
7356	40.34	0.00	10.44	V	50.78	73.98	23.20	PK
7356	28.74	0.16	10.44	V	39.34	53.98	14.64	AV
4904	42.58	0.00	3.03	H	45.61	73.98	28.37	PK
4904	31.24	0.16	3.03	H	34.43	53.98	19.55	AV
7356	41.59	0.00	10.44	H	52.03	73.98	21.95	PK
7356	28.72	0.16	10.44	H	39.32	53.98	14.66	AV



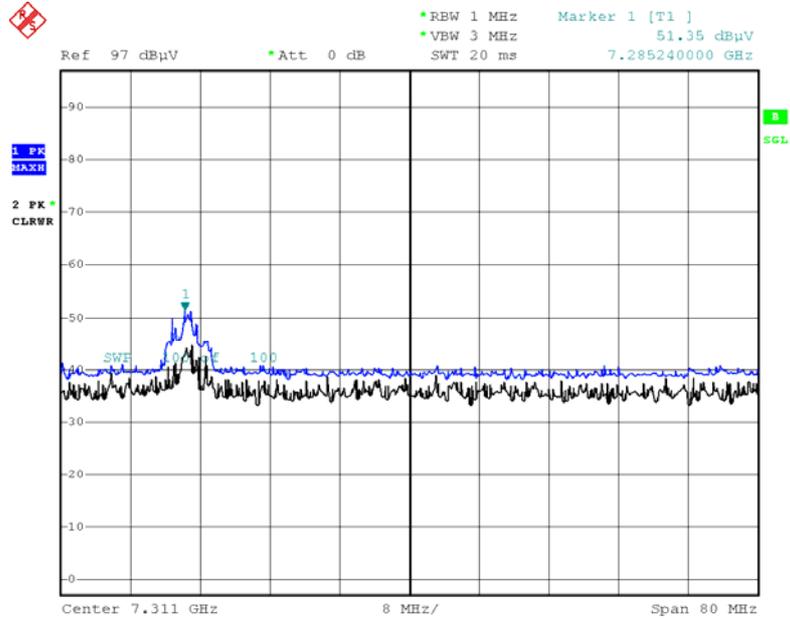
Test Plots (26 Tone)

Radiated Spurious Emissions plot – Average Reading (802.11ax(HE20), Ch.6 3rd Harmonic, V)



Date: 28.AUG.2020 04:08:20

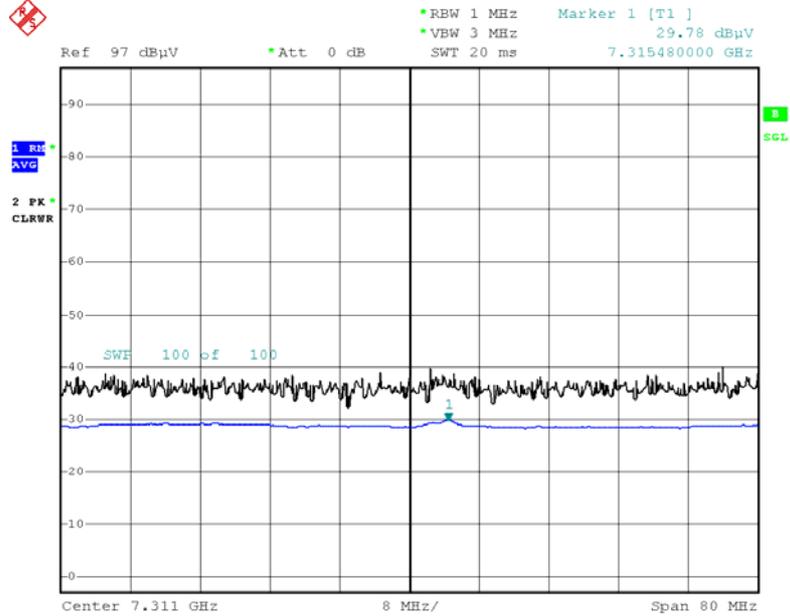
Radiated Spurious Emissions plot – Peak Reading (802.11ax(HE20), Ch.6 3rd Harmonic, V)



Date: 28.AUG.2020 04:08:38

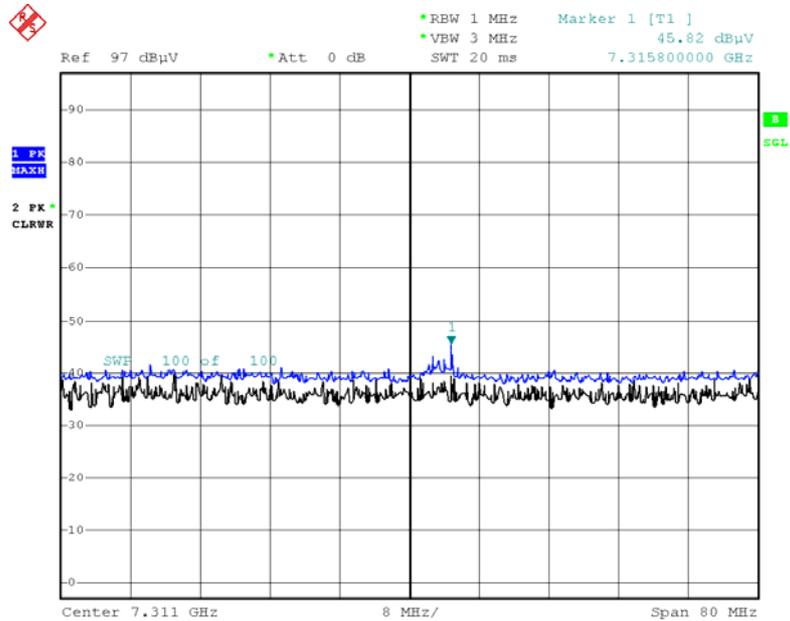


Radiated Spurious Emissions plot – Average Reading (802.11ax(HE40), Ch.6 3rd Harmonic)



Date: 30.AUG.2020 00:59:53

Radiated Spurious Emissions plot – Peak Reading (802.11ax(HE40), Ch.6 3rd Harmonic)



Date: 30.AUG.2020 01:00:04

**Note:**

Plot of worst case are only reported.



**2. PSD\_26 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	46.57	0.00	3.36	V	49.93	73.98	24.05	PK
4874	35.21	0.12	3.36	V	38.69	53.98	15.29	AV
7311	49.45	0.00	9.68	V	59.13	73.98	14.85	PK
7311	31.93	0.12	9.68	V	41.73	53.98	12.25	AV
4874	47.89	0.00	3.36	H	51.25	73.98	22.73	PK
4874	36.34	0.12	3.36	H	39.82	53.98	14.16	AV
7311	47.93	0.00	9.68	H	57.61	73.98	16.37	PK
7311	31.01	0.12	9.68	H	40.81	53.98	13.17	AV



Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	49.36	0.00	3.03	V	52.39	73.98	21.59	PK
4924	36.28	0.12	3.03	V	39.43	53.98	14.55	AV
7386	54.77	0.00	10.44	V	65.21	73.98	8.77	PK
7386	34.59	0.12	10.44	V	45.15	53.98	8.83	AV
4924	50.23	0.00	3.03	H	53.26	73.98	20.72	PK
4924	37.61	0.12	3.03	H	40.76	53.98	13.22	AV
7386	54.65	0.00	10.44	H	65.09	73.98	8.89	PK
7386	34.18	0.12	10.44	H	44.74	53.98	9.24	AV

**Note:**

Channel 12 and 13 are less powerful than channel 11 so the test for high channel was performed at channel 11.



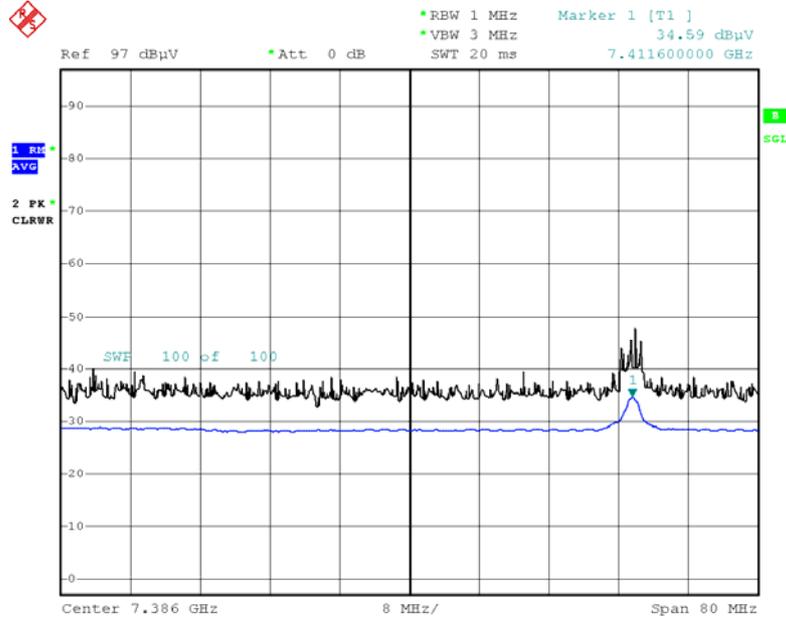
Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2452  
 Channel No.: 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4904	45.78	0.00	3.03	V	48.81	73.98	25.17	PK
4904	32.97	0.20	3.03	V	36.20	53.98	17.78	AV
7356	39.68	0.00	10.44	V	50.12	73.98	23.86	PK
7356	29.11	0.20	10.44	V	39.75	53.98	14.23	AV
4904	46.39	0.00	3.03	H	49.42	73.98	24.56	PK
4904	33.46	0.20	3.03	H	36.69	53.98	17.29	AV
7356	40.40	0.00	10.44	H	50.84	73.98	23.14	PK
7356	29.37	0.20	10.44	H	40.01	53.98	13.97	AV



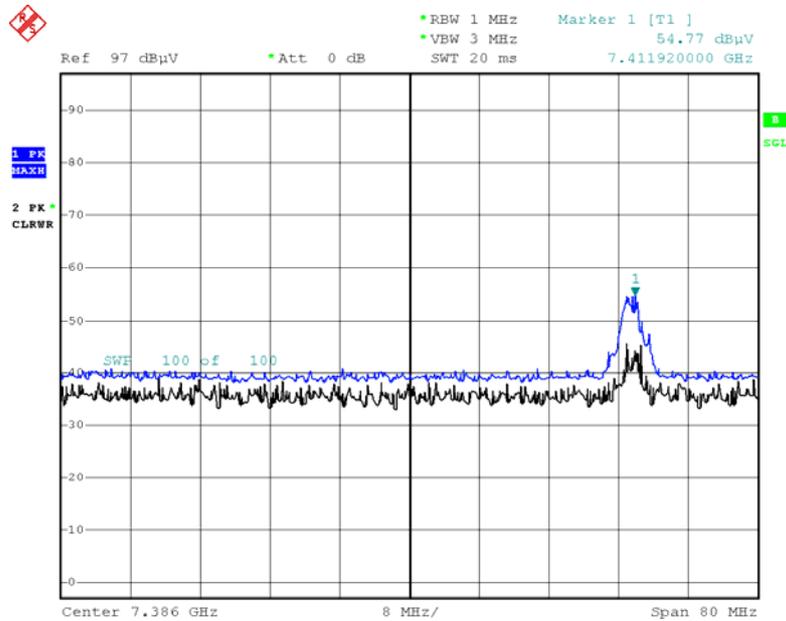
▣ Test Plots (26 Tone)

Radiated Spurious Emissions plot – Average Reading (802.11ax(HE20), Ch.11 3rd Harmonic, V)



Date: 28.AUG.2020 03:44:44

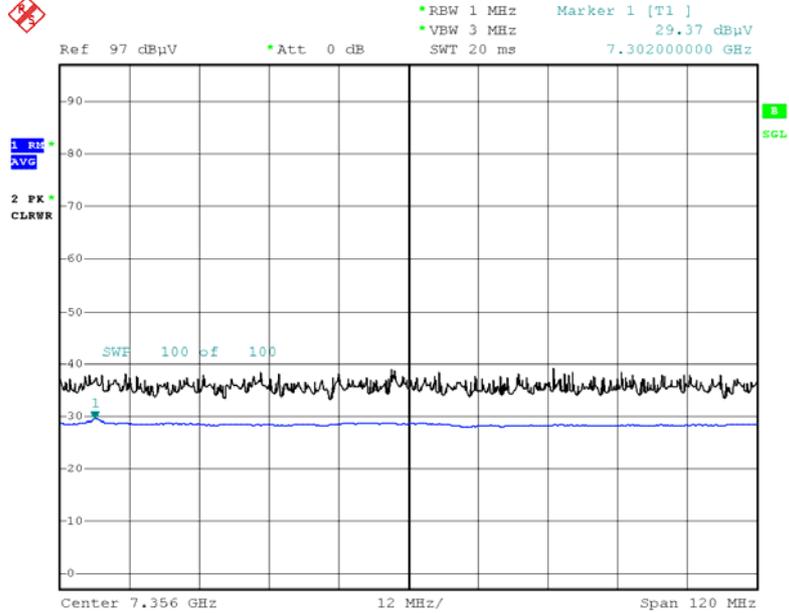
Radiated Spurious Emissions plot – Peak Reading (802.11ax(HE20), Ch.11 3rd Harmonic, V)



Date: 28.AUG.2020 03:45:07

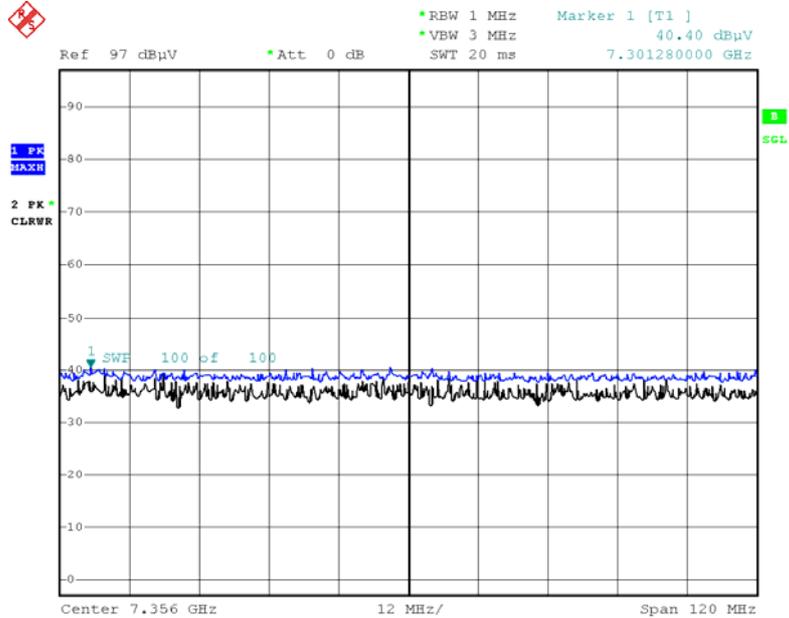


Radiated Spurious Emissions plot – Average Reading (802.11ax(HE40), Ch.9 3rd Harmonic)



Date: 30.AUG.2020 01:55:50

Radiated Spurious Emissions plot – Peak Reading (802.11ax(HE40), Ch.9 3rd Harmonic)



Date: 30.AUG.2020 01:56:02

**Note:**

Plot of worst case are only reported.



### 9.7.2 FFC Cable

#### 1. 26 Tone

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: 8  
 Operating Frequency: 2462  
 Channel No. 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	48.09	0.00	3.03	V	51.12	73.98	22.86	PK
4924	34.99	0.12	3.03	V	38.14	53.98	15.84	AV
7386	51.01	0.00	10.44	V	61.45	73.98	12.53	PK
7386	33.08	0.12	10.44	V	43.64	53.98	10.34	AV
4924	47.46	0.00	3.03	H	50.49	73.98	23.49	PK
4924	35.59	0.12	3.03	H	38.74	53.98	15.24	AV
7386	52.75	0.00	10.44	H	63.19	73.98	10.79	PK
7386	33.87	0.12	10.44	H	44.43	53.98	9.55	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: 0  
 Operating Frequency: 2452  
 Channel No. 9 Ch

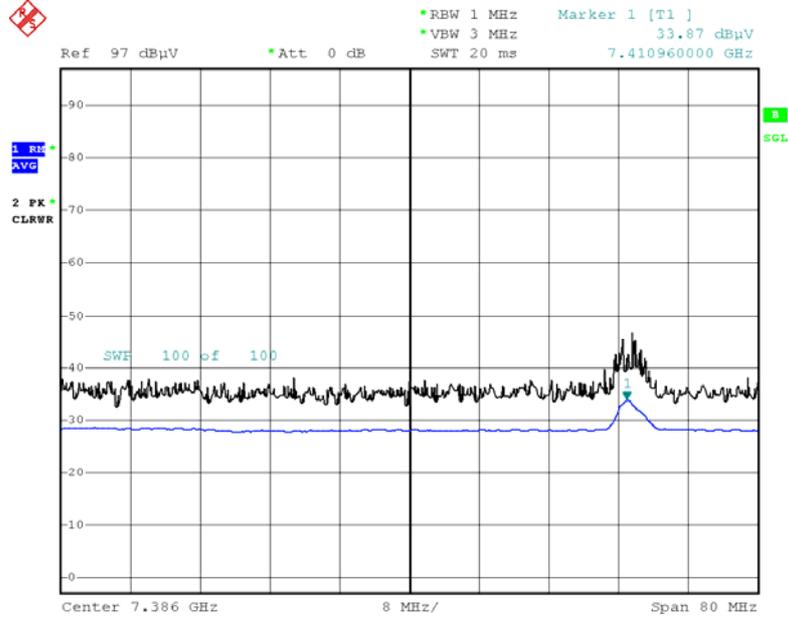
Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4904	42.48	0.00	3.03	V	45.51	73.98	28.47	PK
4904	31.26	0.20	3.03	V	34.49	53.98	19.49	AV
7356	40.21	0.00	10.44	V	50.65	73.98	23.33	PK
7356	28.71	0.20	10.44	V	39.35	53.98	14.63	AV
4904	43.82	0.00	3.03	H	46.85	73.98	27.13	PK
4904	31.95	0.20	3.03	H	35.18	53.98	18.80	AV
7356	40.46	0.00	10.44	H	50.90	73.98	23.08	PK
7356	28.69	0.20	10.44	H	39.33	53.98	14.65	AV

**Note:**

1. The worst case of the basic cable only was tested.

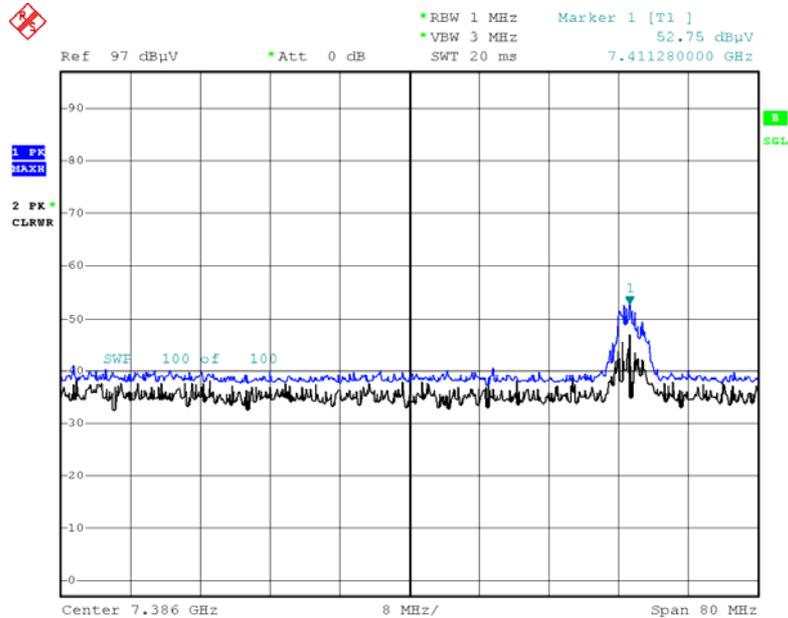
▣ Test Plots (26 Tone)

Radiated Spurious Emissions plot – Average Reading (802.11ax(HE20), Ch.11 3rd Harmonic, H)



Date: 3.SEP.2020 02:26:55

Radiated Spurious Emissions plot – Peak Reading (802.11ax(HE20), Ch.11 3rd Harmonic, H)



Date: 3.SEP.2020 02:27:07

**Note:**

Plot of worst case are only reported.

### 9.7.3 DBS Mode

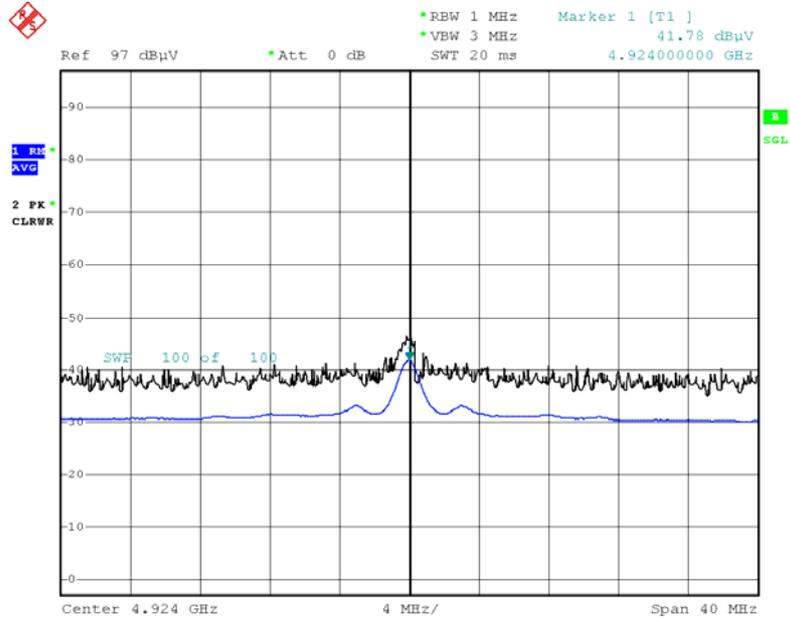
#### Test case1

Operation Mode: 802.11b  
 Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	47.86	3.03	V	50.89	73.98	23.09	PK
4924	41.78	3.03	V	44.81	53.98	9.17	AV
7386	40.96	10.44	V	51.40	73.98	22.58	PK
7386	30.45	10.44	V	40.89	53.98	13.09	AV
4924	46.11	3.03	H	49.14	73.98	24.84	PK
4924	38.85	3.03	H	41.88	53.98	12.10	AV
7386	41.45	10.44	H	51.89	73.98	22.09	PK
7386	30.44	10.44	H	40.88	53.98	13.10	AV

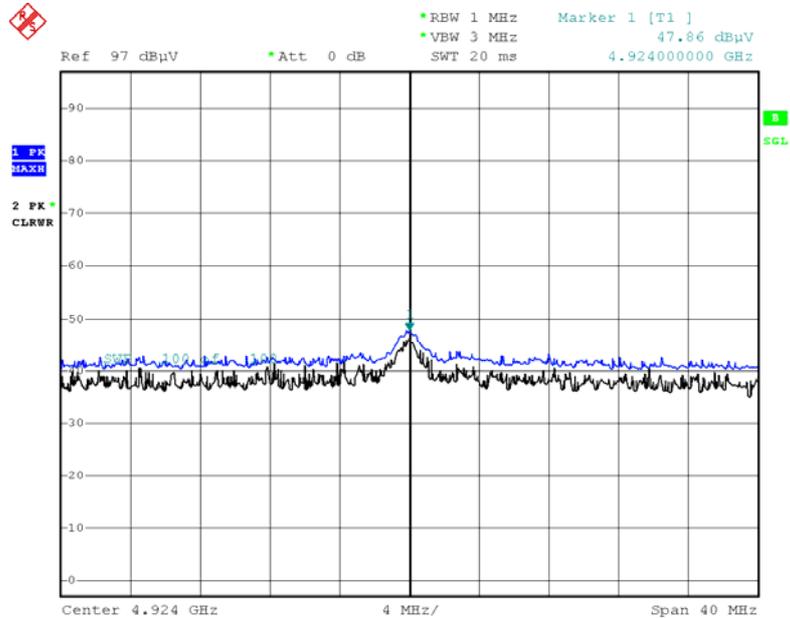
Test Plots

Radiated Spurious Emissions plot – Average Reading (802.11b, Ch.11 2nd Harmonic, V)



Date: 31.AUG.2020 03:12:38

Radiated Spurious Emissions plot – Peak Reading (802.11b, Ch.11 2nd Harmonic, V)



Date: 31.AUG.2020 03:12:53

Note:

Plot of worst case are only reported.

## 9.8 RADIATED RESTRICTED BAND EDGES

### 9.8.1 Basic Cable

#### 1. 26 Tone

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	MCS0
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/ m]	Limit [dBuV/ m]	Margi n [dB]	Measurem ent Type
2390.0	32.09	0.00	35.93	H	68.03	73.98	5.95	PK
2390.0	14.33	0.12	35.93	H	50.38	53.98	3.60	AV
2390.0	31.65	0.00	35.93	V	67.58	73.98	6.40	PK
2390.0	14.29	0.12	35.93	V	50.34	53.98	3.64	AV

Operation Mode:	802.11ax(HE20)
Transfer MCS Index:	MCS0
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/ m]	Limit [dBuV/ m]	Margi n [dB]	Measurem ent Type
2483.5	31.95	0.00	36.44	H	68.39	73.98	5.59	PK
2483.5	13.97	0.16	36.44	H	50.57	53.98	3.41	AV
2483.5	31.16	0.00	36.44	V	67.60	73.98	6.38	PK
2483.5	13.86	0.16	36.44	V	50.45	53.98	3.53	AV



Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2467 MHz  
 Channel No. 12 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	27.78	0.00	36.44	H	64.22	73.98	9.76	PK
2483.5	10.59	0.12	36.44	H	47.15	53.98	6.83	AV
2483.5	27.11	0.00	36.44	V	63.55	73.98	10.43	PK
2483.5	10.07	0.12	36.44	V	46.63	53.98	7.35	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2472 MHz  
 Channel No. 13 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	34.08	0.00	36.44	H	70.52	73.98	3.46	PK
2483.5	14.42	0.12	36.44	H	50.97	53.98	3.01	AV
2483.5	33.98	0.00	36.44	V	70.42	73.98	3.56	PK
2483.5	14.29	0.12	36.44	V	50.85	53.98	3.13	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	26.91	0.00	35.93	H	62.84	73.98	11.14	PK
2390.0	9.30	0.20	35.93	H	45.43	53.98	8.55	AV
2390.0	26.45	0.00	35.93	V	62.38	73.98	11.60	PK
2390.0	9.15	0.20	35.93	V	45.29	53.98	8.69	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	21.22	0.00	36.44	H	57.66	73.98	16.32	PK
2483.5	4.72	0.20	36.44	H	41.36	53.98	12.62	AV
2483.5	21.11	0.00	36.44	V	57.55	73.98	16.43	PK
2483.5	4.68	0.20	36.44	V	41.32	53.98	12.66	AV



**2. 52 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	30.37	0.00	35.93	H	66.30	73.98	7.68	PK
2390.0	11.08	0.13	35.93	H	47.14	53.98	6.84	AV
2390.0	30.25	0.00	35.93	V	66.18	73.98	7.80	PK
2390.0	10.98	0.13	35.93	V	47.04	53.98	6.94	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	34.29	0.00	36.44	H	70.73	73.98	3.25	PK
2483.5	12.06	0.13	36.44	H	48.62	53.98	5.36	AV
2483.5	33.60	0.00	36.44	V	70.04	73.98	3.94	PK
2483.5	11.86	0.13	36.44	V	48.42	53.98	5.56	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	28.16	0.00	36.44	H	64.60	73.98	9.38	PK
2483.5	9.54	0.13	36.44	H	46.10	53.98	7.88	AV
2483.5	28.01	0.00	36.44	V	64.45	73.98	9.53	PK
2483.5	9.43	0.13	36.44	V	45.99	53.98	7.99	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	34.33	0.00	36.44	H	70.77	73.98	3.21	PK
2483.5	14.04	0.13	36.44	H	50.60	53.98	3.38	AV
2483.5	33.98	0.00	36.44	V	70.42	73.98	3.56	PK
2483.5	13.59	0.13	36.44	V	50.15	53.98	3.83	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.08	0.00	35.93	H	61.01	73.98	12.97	PK
2390.0	6.83	0.21	35.93	H	42.98	53.98	11.00	AV
2390.0	24.36	0.00	35.93	V	60.29	73.98	13.69	PK
2390.0	6.66	0.21	35.93	V	42.81	53.98	11.17	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	21.60	0.00	36.44	H	58.04	73.98	15.94	PK
2483.5	4.54	0.21	36.44	H	41.19	53.98	12.79	AV
2483.5	21.43	0.00	36.44	V	57.87	73.98	16.11	PK
2483.5	4.42	0.21	36.44	V	41.07	53.98	12.91	AV

### 3. 106 Tone

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	34.24	0.00	35.93	H	70.18	73.98	3.80	PK
2390.0	13.24	0.14	35.93	H	49.31	53.98	4.67	AV
2390.0	33.99	0.00	35.93	V	69.92	73.98	4.06	PK
2390.0	13.13	0.14	35.93	V	49.20	53.98	4.78	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	32.47	0.00	36.44	H	68.91	73.98	5.07	PK
2483.5	14.25	0.14	36.44	H	50.82	53.98	3.16	AV
2483.5	32.17	0.00	36.44	V	68.61	73.98	5.37	PK
2483.5	14.10	0.14	36.44	V	50.68	53.98	3.30	AV



Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	29.90	0.00	36.44	H	66.34	73.98	7.64	PK
2483.5	13.51	0.14	36.44	H	50.09	53.98	3.89	AV
2483.5	28.86	0.00	36.44	V	65.30	73.98	8.68	PK
2483.5	13.25	0.14	36.44	V	49.83	53.98	4.15	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	34.04	0.00	36.44	H	70.48	73.98	3.50	PK
2483.5	14.32	0.14	36.44	H	50.90	53.98	3.08	AV
2483.5	33.48	0.00	36.44	V	69.92	73.98	4.06	PK
2483.5	14.21	0.14	36.44	V	50.79	53.98	3.19	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	30.36	0.00	35.93	H	66.29	73.98	7.69	PK
2390.0	8.98	0.14	35.93	H	45.05	53.98	8.93	AV
2390.0	29.45	0.00	35.93	V	65.38	73.98	8.60	PK
2390.0	8.75	0.14	35.93	V	44.82	53.98	9.16	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	20.62	0.00	36.44	H	57.05	73.98	16.93	PK
2483.5	4.52	0.14	36.44	H	41.10	53.98	12.88	AV
2483.5	20.49	0.00	36.44	V	56.93	73.98	17.05	PK
2483.5	4.43	0.14	36.44	V	41.01	53.98	12.97	AV



**4. 242 Tone**

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/ m]	Limit [dBuV/ m]	Margi n [dB]	Measurem ent Type
2390.0	32.09	0.00	35.93	H	68.03	73.98	5.95	PK
2390.0	14.33	0.16	35.93	H	50.42	53.98	3.56	AV
2390.0	31.65	0.00	35.93	V	67.58	73.98	6.40	PK
2390.0	14.29	0.16	35.93	V	50.38	53.98	3.60	AV
2483.5	31.95	0.00	36.44	H	68.39	73.98	5.59	PK
2483.5	13.97	0.16	36.44	H	50.57	53.98	3.41	AV
2483.5	31.16	0.00	36.44	V	67.60	73.98	6.38	PK
2483.5	13.86	0.16	36.44	V	50.45	53.98	3.53	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2467 MHz  
 Channel No. 12 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	28.02	0.00	36.44	H	64.46	73.98	9.52	PK
2483.5	13.82	0.16	36.44	H	50.41	53.98	3.57	AV
2483.5	27.39	0.00	36.44	V	63.83	73.98	10.15	PK
2483.5	13.58	0.16	36.44	V	50.17	53.98	3.81	AV

Operation Mode: 802.11ax(HE20)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2472 MHz  
 Channel No. 13 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	29.35	0.00	36.44	H	65.79	73.98	8.19	PK
2483.5	14.37	0.16	36.44	H	50.97	53.98	3.01	AV
2483.5	29.21	0.00	36.44	V	65.65	73.98	8.33	PK
2483.5	14.26	0.16	36.44	V	50.86	53.98	3.12	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	32.04	0.00	35.93	H	67.97	73.98	6.01	PK
2390.0	14.52	0.16	35.93	H	50.61	53.98	3.37	AV
2390.0	31.49	0.00	35.93	V	67.42	73.98	6.56	PK
2390.0	14.14	0.16	35.93	V	50.23	53.98	3.75	AV

Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	26.75	0.00	36.44	H	63.18	73.98	10.80	PK
2483.5	14.04	0.16	36.44	H	50.64	53.98	3.34	AV
2483.5	26.45	0.00	36.44	V	62.89	73.98	11.09	PK
2483.5	13.89	0.16	36.44	V	50.49	53.98	3.49	AV



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Operation Mode: 802.11ax(HE40)  
 Transfer MCS Index: MCS0  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No. 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margi n [dB]	Measurem ent Type
2390.0	32.72	0.00	35.93	H	68.65	73.98	5.33	PK
2390.0	14.73	0.16	35.93	H	50.82	53.98	3.16	AV
2390.0	31.87	0.00	35.93	V	67.80	73.98	6.18	PK
2390.0	14.33	0.16	35.93	V	50.42	53.98	3.56	AV
2483.5	26.93	0.00	36.44	H	63.37	73.98	10.61	PK
2483.5	14.37	0.16	36.44	H	50.96	53.98	3.02	AV
2483.5	26.15	0.00	36.44	V	62.59	73.98	11.39	PK
2483.5	14.28	0.16	36.44	V	50.88	53.98	3.10	AV



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Operation Mode: 802.11ax(HE20)  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/ m]	Limit [dBuV/ m]	Margi n [dB]	Measurem ent Type
2390.0	29.58	0.00	35.93	H	65.51	73.98	8.47	PK
2390.0	12.74	2.24	35.93	H	50.90	53.98	3.08	AV
2390.0	29.11	0.00	35.93	V	65.04	73.98	8.94	PK
2390.0	12.42	2.24	35.93	V	50.59	53.98	3.39	AV
2483.5	28.41	0.00	36.44	H	64.84	73.98	9.14	PK
2483.5	11.96	2.24	36.44	H	50.64	53.98	3.34	AV
2483.5	28.31	0.00	36.44	V	64.75	73.98	9.23	PK
2483.5	11.84	2.24	36.44	V	50.52	53.98	3.46	AV

Operation Mode: 802.11ax(HE20)  
 Operating Frequency: 2467 MHz  
 Channel No.: 12 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	29.31	0.00	36.44	H	65.75	73.98	8.23	PK
2483.5	12.29	2.24	36.44	H	50.96	53.98	3.02	AV
2483.5	28.99	0.00	36.44	V	65.43	73.98	8.55	PK
2483.5	12.03	2.24	36.44	V	50.71	53.98	3.27	AV

Operation Mode: 802.11ax(HE20)  
 Operating Frequency: 2472 MHz  
 Channel No.: 13 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	28.33	0.00	36.44	H	64.77	73.98	9.21	PK
2483.5	12.12	2.24	36.44	H	50.80	53.98	3.18	AV
2483.5	27.93	0.00	36.44	V	64.37	73.98	9.61	PK
2483.5	12.27	2.24	36.44	V	50.94	53.98	3.04	AV



Operation Mode: 802.11ax(HE40)  
 Operating Frequency: 2422 MHz, 2452 MHz  
 Channel No.: 03 Ch, 09 Ch

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor	※ A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.58	0.00	35.93	H	61.51	73.98	12.47	PK
2390.0	12.12	2.30	35.93	H	50.35	53.98	3.63	AV
2390.0	25.45	0.00	35.93	V	61.38	73.98	12.60	PK
2390.0	12.07	2.30	35.93	V	50.30	53.98	3.68	AV
2483.5	26.34	0.00	36.44	H	62.78	73.98	11.20	PK
2483.5	12.17	2.30	36.44	H	50.91	53.98	3.07	AV
2483.5	26.11	0.00	36.44	V	62.55	73.98	11.43	PK
2483.5	12.07	2.30	36.44	V	50.80	53.98	3.18	AV